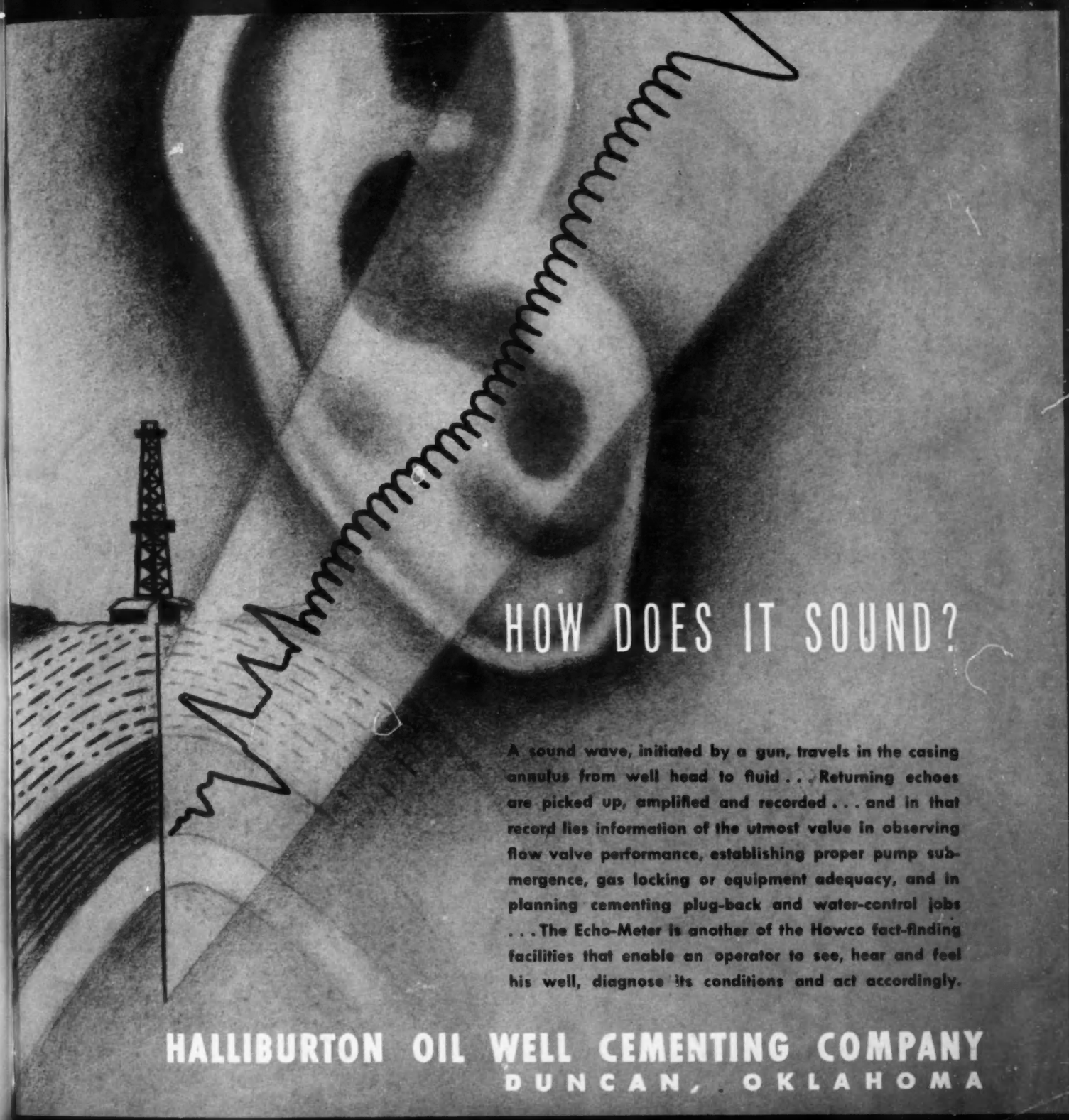
The OIL WEEKLY



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THE OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

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LOOKING AHEAD
... with the Editor

Next week THE OIL WEEKLY will devote a special section to the Ordovician producing formations of West Texas-New Mexico, the brightest ray of hope on the national horizon for increasing the country's production quickly. Recent important deep strikes in the region appear to be the most outstanding oil source found in several years. Already West Texas is beginning to feel the influence of these strikes, the volume of wildcat work having accelerated sharply. Follow-up development in some of the new fields has been scheduled, and may attain sizeable proportions in some spots.

The special section will consist of some unusually important tabulations, plus a two-color map of the region. Elsewhere in the issue will appear articles that will discuss these recent developments and operating problems that have been encountered.

One of the tabulations will be a complete list of dry holes drilled below the Permian Beds in West Texas and New Mexico. It will give exact location of each test, elevation, and double-checked report on where all available geological markers were encountered below the Permian. Such information has never been published. A vast amount of work was necessary in preparing this table, and was made possible by the fact that individual information has been collected by our staff since the drilling of the Ordovician test in the Basin back in 1929!

Another tabulation will give detail data on the 14 Ordovician fields discovered so far, including such essential information as productive area, and yield per well and per acre. A third tabulation will give geological data on Ordovician discovery wells.

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The Changing Panorama

Time for Realism

IT IS time that we use some realism along with our idealism. Nobody can have read the news of the past week without contemplating the possibility that Russia might make a separate peace with Germany. We all devoutly hope that she will not, but we do not have a thing to guide a belief that she will not. If she made a separate peace with Germany it would likely mean two or three extra years of war. And if that happens, this country is going to need a lot more oil than is in prospect right now.

As a matter of fact, due to several factors which have curtailed domestic drilling drastically, a low crude-oil price, scarcity of drilling material, and manpower shortage, the situation a year from now does not look good.

If the war were prolonged for an extended period, our domestic situation could really be bad.

OPA may be willing to assume the blame for a petroleum shortage, but that assumption will not help the country if it finds itself facing a real shortage of petroleum for use in war effort. Any apology which a former head of OPA (by that time he probably will be only a former head) might well make, will run few planes and fuel few warships.

Yes, it is time for some realism. We must have an ample oil supply. Three things are required to develop it: a price which is reasonable, material with which to drill and manpower with which to do the work.

It is not a case of an industry wanting to hold up its government for more money. It is a case of an essential industry getting enough to keep itself in operation.

Surplus of Heavy Fuel Oil Exists in East

SOMEWHERE along the line somebody in estimating fuel-oil requirements for the Navy, has slipped a cog, insofar as the Eastern Seaboard is concerned, with the result that storage tanks in that area are literally filled with heavy fuel oil while the country is suffering from dearth of gasoline and heating oil.

The surplus supply of fuel oil is also reflected in slowing down of tanker movement and may interfere with the ability of the oil industry to take full advantage of crude oil which may be sent north through the Big-Inch line. Tankers which ought to be busily engaged in transporting petroleum products are known, within a recent period, to have lain idle for days in the New York area, because storage was full of heavy fuel oil.

This situation with reference to surplus of fuel oil, it is said, is not confined to the Eastern Seaboard, and heavy fuel either is or will be backing up at coastal refineries.

So far as can be determined, the fault lies with somebody in the Navy Department who misfigured somewhere. If the surplus were in heating oils, the situation would not be so bad, as the season of heaviest consumption of burner oils is now approaching and in former days the industry prepared for it by building up stocks. However, the heavy fuel oil situation will not help solve the heater oil problem but will on the contrary make it worse because of storage scarcity. The situation on fuel oil has changed to the point where industrial plants which converted to coal from oil when transportation shortage cut down fuel oil supplies in the east, and now reconverting back to oil.

Government Hoards Much Manpower

WITH the manpower shortage rapidly becoming the nation's prime problem, and with Selective Service threatening to draft needed oil industry personnel, some cognizance could be taken of charges that the government and its ramified agencies is the chief hoarder of manpower.

Senator Harry F. Byrd of Virginia, chairman of the Joint Committee on Reduction of Nonessential Federal Expenditures, reported that dismissal of 300,000 federal employes not only would save a small amount of tax money ($750,000,000 annually) but would expedite the war effort.

With personnel directors scrambling for new workers, the joint committee interviewed and received many communications from employes of the government to the effect that a condition of over-employment exists in Washington bureaus to such an extent as to retard efficiency and to create discontent among employes who are anxious to serve during the emergency.

The government's civilian army now totals more than 3,000,000 employes. Of this number, 30 percent are women. Of the approximate 2,100,000 men, nearly 1,000,000 are of draft age. "That is to say there are now employed in the civilian personnel of the government nearly 1,000,000 men between the ages of 18 and 38," the committee reported.

Byrd charged that the War Department was one of the chief offenders in efficient utilization of civilian personnel. "This department has nearly 500,000 civilian employes not directly engaged in the war effort or any war production work and, in addition, has many thousands of WACS and many other thousands of personnel."

Other instances of manpower waste, according to Byrd:

The OPA has been supporting 2700 lawyers; the British price administration, which has been successful, has a legal staff of 10.

The War Manpower Commission has 63,559 employes;

The Federal Security Agency has 31,482 workers;

The Federal Works Agency has 25,864 employes;

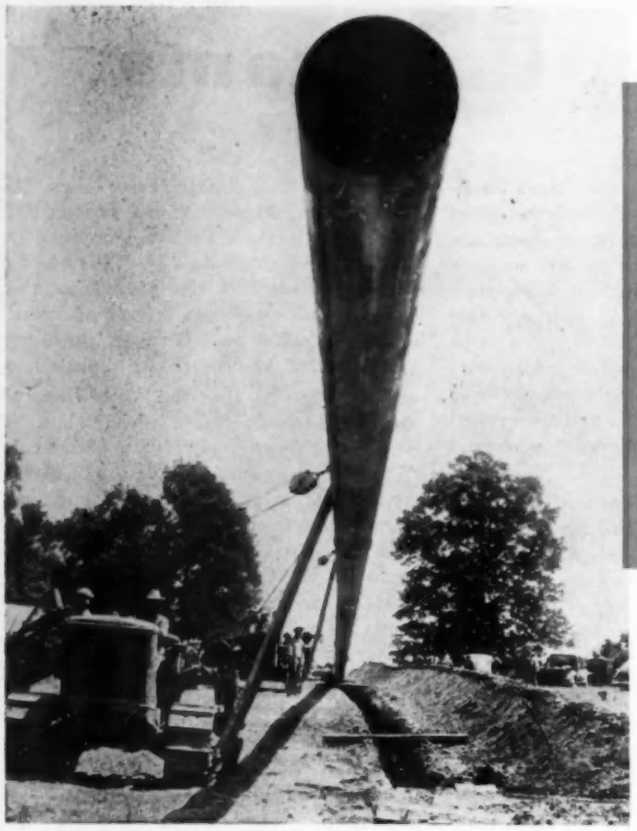
The National Housing Agency has 18,082 civilian personnel while OPA has 51,817 employes.

Ickes Borrows Key Men from Ickes

Petroleum Administrator Ickes lost two valued members of his organization last week, but President Ickes of the Petroleum Reserves Corporation added two good men to his staff.

In other words, E. DeGolyer resigned as assistant deputy petroleum administrator to become consultant of Petroleum Reserves Corporation, and Mortimer Kline, associated chief counsel, quit to become general counsel of the recently established foreign petroleum agency.

Originally set up by Secretary of Commerce Jesse Jones, as a subsidiary of the Reconstruction Finance Corporation to acquire oil and oil properties abroad, PRC was transferred to the new Office of Emergency Warfare following a publicly-conducted feud between Jones and Vice President Wallace, and Ickes was made president of the corporation so as to consolidate all oil matters.



The Big-Inch was caught pointing skyward during construction work, giving the appearance of the "big gun" that it actually is.

National and Significance Must Be Measured

By HAROLD L. ICKES.

IF YOU read the editorials in certain newspapers, you will be assured from time to time that we bureaucrats in Washington consider ourselves to be omnipotent, omniscient and omni-a-few-other-things. Now, THE OIL WEEKLY has been very generous in its treatment of us in PAW, so I do not believe that Editor Warren Baker feels that way about us. I choose to believe it was merely this summer's unusually severe heat in Texas which caused him to say in a recent letter to me that he wanted "a story that will add to the importance of the Big-Inch pipeline."

I am certain that Editor Baker will agree that even the most comprehensive catalog of Big-Inch facts; even the most incisive analysis of the Big-Inch role in the present struggle for world freedom and decency among men cannot add or detract from the story that will be written with Big-Inch oil across the battlefields of Europe. And an attempt to write that story now would be premature indeed. I shall not attempt it.

I shall only hope that every reader of this piece may feel, as I do, that the importance of the Big-Inch War Emergency Pipeline to the comprehensive plan for getting more oil to all the fighting men and to the working civilians who need it goes beyond anything that can be penned in praise or explanation of the significance of Big-Inch.

This then shall be an interim report. I hope it reflects what I know must be every oil man's essential interest in this tremendous project.

Let's look at this 24-inch War Emergency Pipeline.

As a transportation facility it is the equal of 70 pre-war tankers running constantly in the normal Gulf-to-East Coast run. It has the delivery equivalent of 23,000 tank cars operating constantly on a fast turn-around between Texas-Louisiana crude-oil sources and New York or Philadelphia and, at rated capacity operations, far cheaper than any possible tank-car rate.

As an engineering accomplishment Big-Inch ranks with a host of other wartime miracles of ingenuity and industrial guts that all belong in the catagory of "eighth wonder of the world." In my opinion it ranks higher than most.

And as a typical American answer to a tough wartime problem, Big-Inch stands with the Victory Ships, warplane output, the fantastic achievements recorded in the production of high-octane gasoline, yes, even with the development of an expeditionary force that, in less than two years, could go from scratch to an out-blitzing of the original dunder and blitzmen.

Whether as oil carrier, engineering achievement or working symbol of an aroused America's get-up-and-go for Victory, Big-Inch is a superlative example.

Its completion to New York and Philadelphia refineries now makes possible two important advantages along the hard road to victory.

First, it steps up the total volume of oil supply that can be assured with certainty at embarkation points 2000 miles nearer the European battle zones. Look at a map of the world and draw your own conclusions as to what that means in terms of *more oil,* delivered *faster,* and at a greatly minimized hazard to the convoys that must take it over there.

Second, Big-Inch rounds out the major projects involved in the total revamping of the pre-war system of oil supply for the Eastern Seaboard, and is the immediate reason why the equitable distribution of gasoline supplies among civilian consumers throughout the Nation, east of the Rockies, is at last possible.

What does an *assured* supply of *more* oil, deliverable on *faster schedule* mean to the men who are now exploding the underbelly of hate-inflated Europe? Weigh this streamlined statistic. It took as much oil every day to fuel the vic-

International of Big-Inch in Numerous Terms

Petroleum Administrator for War

Administrator Ickes speaking at ceremonies when the last weld was made on the Big-Inch pipe line at Phoenixville, Pa., on July 19.

torious campaign in Tunisia as Big-Inch will deliver daily to Eastern refineries—300,000 barrels a day!

It takes no military strategist, no lieutenant general of logistics, to translate that fact into the value of Big-Inch as a direct fighting tool. Perhaps its fighting merit comes into still clearer perspective in the answer to this question: Where would the fighting forces be without it?

Apply the same question to the new status of the Eastern civilian motorist. Where would he be without Big-Inch?

As I have stated repeatedly since the origin of the gasoline crisis, the heavier restrictions on the motorists of the East, caused by petroleum transportation deficiencies alone, would be relieved just as promptly as the transportation deficiencies could be corrected.

Big-Inch has helped put us over the hump of the oil-transportation problem. Now the restrictions can be lifted somewhat in the East; the sharing of constructive sacrifice for the prosecution and the winning of the war can now be equitably spread.

Reams have been written about the immensity of the Big-Inch as an engineering and construction undertaking. To me, its magnitude is a rather diluted tribute to both the genius of the pipeline engineers who conceived it and the stalwart pipeliners who ramrodded it through as brutal a stretch of right-of-way and bad-weather breaks as you could hope to find on this continent (I will qualify that, if I have to, after the full story of the Ft. Norman-Alaska Highway pipe-line job is in). It is simply that we in America, have come to accept that sort of accomplishment from the men who make this country tick. They take the new, the difficult and the impossible in stride—and that is that—and they are the first to shrug off praise for the terrific job they have done.

To me, and I think to most laymen, the Big-Inch is great not because it is big, but because it is another American "first"—a new record, a something done better and faster, an achievement that is part of the great, going-places stream of life that is America fighting today.

The fact that it takes almost the equivalent of a full day's production from all the oil wells of the Nation to fill the line—the fact that 345,000 tons of steel and other metals had to be lifted from American mines and processed into pipe, valves, motors and pumps and a thousand other items to build Big-Inch . . . the fact that its 78 motors will turn up 117,000 horsepower to drive Texas oil to the Eastern Seaboard at a completely incomprehensible volume of 300,000 barrels a day . . . these facts are bones without flesh to the fighting men and the motorists. What counts is the fact that we can identify ourselves with another mighty achievement and sense the welling undercurrent of satisfaction that comes with pride in something that is a part of each of us.

My own sense of identity with Big-Inch, naturally, goes deeper even than that. Circumstances gave me the role of Big-Inch instigator, but far more than mere circumstances is at the roots of my pride in having had a hand in its creation. Far deeper is the gratitude I feel for the men who have carried the ball that it was my plain responsibility and official privilege to pass. The pipeliners, from the officers, directors and staff of War Emergency Pipelines, Inc., down to the last little punkin' buster who mucked the ditch, they are the men who have scored the goals. My hat is off and this curmudgeonly old heart is open to them.

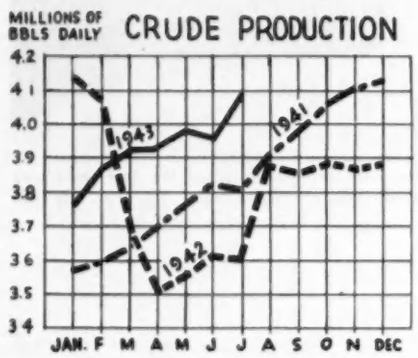
For the great job they have done? Yes. But more than that. With forthright zeal, untempered by ancient animosities toward me, they joined hands with the Petroleum Administration, and through us with the Nation, to lay Big-Inch . . . in time.

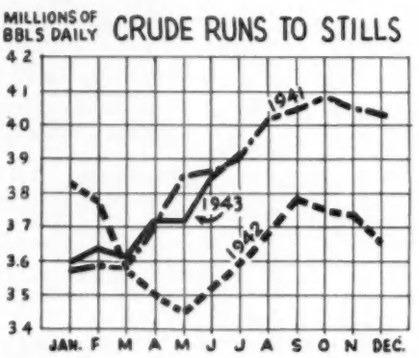
I have a word for it. It is the one-word definition of democracy. It is *cooperation*.

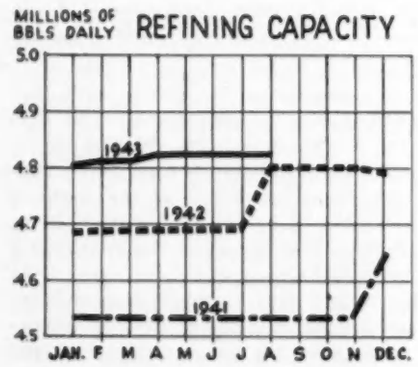
Sharply Expanded Production Feature of Recent Petroleum

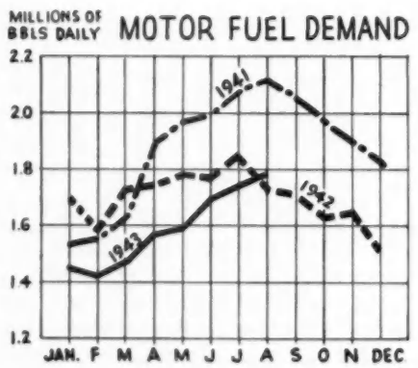
Increase of 334,000 barrels daily within three months sends production schedules to unprecedented levels that call for maximum output in virtually every area, except West Texas. Refinery operations also are boosted, yet continue to keep ahead of product yields.

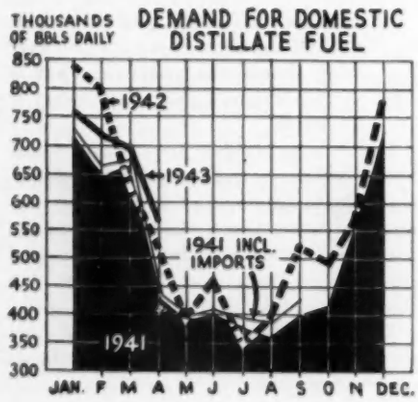
By L. J. LOGAN
Associate Editor

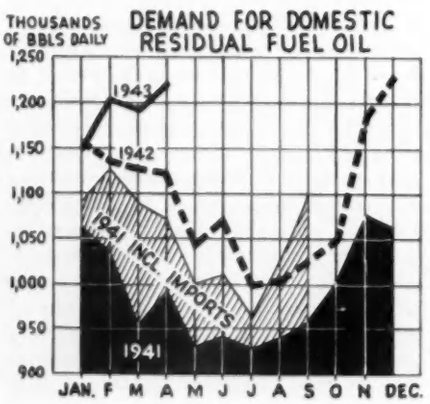












IN reflection of the heavy demands imposed upon the industry by military requirements and industrial and civilian needs, the industry and the nation are confronted with great difficulty in supplying needs.

Curtailment of civilian use of gasoline was tightened in the Middle West and the Southwest at the middle of August, not because of rubber or oil transportation shortages, original causes for rationing, but because of the growing scarcity of petroleum itself.

At the same time, over-all demand for petroleum was continuing to increase, in reflection of requirements for military purposes. Consequently, schedules for production of crude oil and other petroleum liquids have continued to expand, month by month, since the middle of this year. And under the schedule laid out for September, virtually every state and district in the United States, except West Texas, will be producing at maximum efficient capacity.

The September production certifications of PAW call for a new record high output of 4,552,100 barrels daily of all petroleum liquids. The sharp increase in schedules in recent months is shown in accompanying figures:

June, 1943	4,218,900
July	4,328,500
August	4,424,600
September	4,552,100

Crude oil accounts for the bulk of the production of all petroleum liquids, and while crude output in August was greater than ever before, it will set another new record in September.

The rates at which crude currently is being produced are shown below.

Pre-War Peak (December, 1941)	4,138,000
War-Time Low (April, 1942)	3,502,000
January, 1943	3,782,000
June, 1943	3,977,000
July, 1943	4,101,000
August, 1943	4,227,000
September, 1943 (Forecast)	4,325,000

In expanding schedules of production of all petroleum liquids from 4,218,900 barrels daily in June, 1943, to 4,552,100 daily in September, PAW called for an increase of 333,000 barrels daily within three months.

To provide the increase, it was neces-

Rates Trends

sary to increase schedules in District 3 by an even greater amount—by 369,000 barrels within the 3 months. For declining producing ability required downward revisions in District 1 and 2, while only nominal increases were practicable in Districts 4 and 5. Within District 3, the bulk of the increase in allocations was in Texas, which was raised 307,000 barrels. Louisiana was increased in the 3 months by 45,000 barrels, Arkansas 7,000, and New Mexico 11,000, while Mississippi was left unchanged. These changes are indicated in an accompanying tabulation.

Recent Change in Producing Rates of States

District and State	Certified Production Rates (Barrels Daily) September, 1943	June, 1943	Change
District 1:			
New York	14,700	15,000	— 300
Pennsylvania	46,400	48,000	— 1,600
West Virginia	15,200	15,000	+ 200
Total	76,300	78,000	— 1,700
District 2:			
Illinois	222,800	246,200	— 23,400
Indiana	13,800	15,500	— 1,700
Kansas	300,000	300,000	
Kentucky	25,500	23,100	+ 2,400
Michigan	60,100	58,900	+ 1,200
Nebraska	2,000	2,400	— 400
Ohio	10,300	10,400	— 100
Oklahoma	347,000	373,500	— 26,500
Total	981,500	1,030,000	— 48,500
District 3:			
Arkansas	80,100	72,800	+ 7,300
Louisiana	375,000	330,800	+ 44,200
Mississippi	50,000	50,000	
New Mexico	116,600	105,700	+ 10,900
Texas	1,909,000	1,602,000	+307,000
Total	2,530,700	2,161,300	+369,400
District 4:			
Colorado	6,500	7,000	— 500
Montana	23,300	22,300	+ 1,000
Wyoming	98,800	97,000	+ 1,800
Total	128,600	126,300	+ 2,300
District 5:			
California	835,000	823,300	+ 11,700
Total United States	4,552,100	4,218,900	+333,200

While production of crude oil has climbed lately to unprecedented levels, output was sufficiently high in the earlier months of the year to result in cumulated production in the first 7 months of 1943 in a greater amount than for the corresponding months of any previous year.

Similarly, crude runs to stills for the first 7 months were greater than in the like period of any other year.

Crude oil production in the first 7 months was 5.5 percent greater in 1943 than in 1942, and crude run to stills showed an increase of 3.4 percent.

These increases in production and refinery runs have been greater than normal in relation to the trend of total demand for petroleum, which has been only about the same this year as last year, for the first 7 months, with increases in demand for military use about offset by curtailment of civilian use of gasoline, fuel oils, and other products.

Normally, demand would have been met to a considerable extent by imports of crude oil and fuel oil, but because of the war, imports evidently have been held down to low levels this year, although there has been verification of recent reports that some Venezuelan crude oil currently is reaching United States refineries.

Changes in stocks of crude oil have not materially affected the production of crude oil, either last year or this year, the inventories having shown practically no net change between January 1 and the middle of August in either year. Between January 1 and August 14 this year, stocks of refinable crude were increased 2,166,000 barrels and those of heavy crude in California were reduced 801,000. Between January 1 and August 15 last year, the stocks of refinable crude were reduced 451,000 barrels and heavy in California was increased 300,000 barrels.

On the other hand, changes in stocks of refiined products have been such as to require relatively larger refinery runs this year than last year. The industry drew very heavily last year on stocks of refined products in meeting demand. But stocks were seriously depleted, and it has not been possible this year to obtain as much of the refined oils from the storage tanks. Consequently, current output of refineries has had to keep closer to current demand than it did last year. Between January 1 and July 1 of last year, the industry drew on stocks of refined products to the extent of 48,008,000 barrels. But in the corresponding period of this year, the draft on refined stocks was off to 19,402,000 barrels. Between July 1 and August 15 of this year, there has been a further withdrawal from refined stocks of about 3,500,000 barrels, whereas there was an addition of about 500,000 barrels in the corresponding period last year. Residual fuel stocks since mid-year have remained about unchanged, and a 6,000,000-barrel withdrawal of gasoline was about normal, having compared with a draft of 7,000,000 barrels in the like period last year. However, stocks of gas oil and distillate fuel have not been increased normally, having been expanded 2,000,000 barrels, compared with a build-up of 6,500,000 barrels in July and the first half of August last year.

While the United States produced 5.5 percent more crude oil in the first 7 months of 1943 than in the corresponding months of 1942, the states which have largely provided the additional oil included California, up 20 percent; Kansas, up 19 percent; Texas, up 13 percent; and New Mexico, up 21

United States Crude Oil Production

Data in thousands of barrels. From Bureau of Mines, except July, 1943, from American Petroleum Institute. Also Texas broken down by districts with aid of A.P.I.

STATE OR DISTRICT	War Time Fluctuations in Daily Average Production: Peak Before U. S. Entry in War: December, 1941	Low After U. S. Entry in War: April, 1942	Current Data: July, 1943	Production in First 7 Months, 1942-1943: Total Amount 1942	Total Amount 1943	Daily Average 1942	Daily Average 1943	Percent Difference
Arkansas	74.3	71.6	77.0	15,441	15,703	72.8	74.0	+ 1.6
California	631.9	637.5	774.0	135,814	163,835	640.6	772.8	+20.6
Colorado	6.1	5.7	7.1	1,261	1,308	5.9	6.2	+ 5.0
Illinois	397.8	301.6	216.4	66,354	48,630	313.0	229.4	—26.7
Indiana	18.6	19.8	13.5	4,136	3,113	19.5	14.7	—24.6
Kansas	256.7	249.8	294.9	53,725	63,855	253.4	301.2	+18.8
Kentucky	12.7	11.9	22.8	2,475	4,176	11.7	19.7	+68.3
Louisiana	347.4	306.8	347.6	67,591	70,675	318.8	333.4	+ 4.5
North Louisiana	139.3	75.3	84.9	16,158	16,864	76.2	79.6	+ 4.4
South Louisiana	208.1	231.5	262.7	51,433	53,811	242.6	253.8	+ 4.6
Michigan	56.8	62.5	56.4	12,269	12,315	57.9	58.1	+ 0.3
Mississippi	70.5	96.2	52.6	18,331	11,571	86.5	54.6	—36.8
Montana	22.0	22.0	20.9	4,673	4,388	22.1	20.7	— 6.3
Nebraska	5.1	3.9	2.1	805	445	3.8	2.1	—44.7
New Mexico	112.2	67.3	101.7	17,538	21,192	82.7	99.9	+20.7
New York	15.1	15.3	14.4	3,166	3,000	14.9	14.2	— 4.6
Ohio	9.9	10.6	8.7	2,090	1,898	9.9	9.0	— 9.0
Oklahoma	427.6	389.6	332.6	83,673	72,123	394.7	340.2	—13.8
Pennsylvania	49.3	52.7	45.2	10,541	9,491	49.7	44.8	— 9.8
Texas	1,532.3	1,081.0	1,609.0	272,186	307,859	1,283.8	1,452.1	+13.1
East Texas Field	386.2	225.4	369.0	65,813	72,446	310.5	341.7	+10.0
Rest of East Texas	86.1	78.7	127.7	18,187	23,551	85.8	111.1	+29.4
North Texas	137.1	130.5	137.4	30,672	28,627	144.6	135.0	— 6.6
West Texas	302.4	185.8	244.7	48,068	47,281	226.7	223.0	— 1.6
Texas Panhandle	92.1	83.5	90.4	18,149	19,033	85.6	89.8	+ 4.9
Gulf Coast, Upper	303.2	227.5	411.1	55,039	76,253	259.7	359.7	+38.5
Gulf Coast, Lower	126.9	82.6	146.3	20,288	25,535	95.7	120.4	+25.8
Southwest Texas	78.2	48.0	65.8	12,019	11,545	56.6	54.5	— 3.7
South Central Texas	20.1	19.0	16.6	3,951	3,588	18.6	16.9	— 9.1
West Virginia	9.8	10.4	9.1	2,093	1,992	9.9	9.4	— 5.0
Wyoming	82.2	85.4	94.2	18,118	18,887	85.5	89.1	+ 4.2
Others	0.2	0.2	1.1	38	27	0.2	0.1	—50.0
Total United States	4,138.5	3,501.8	4,101.3	792,318	836,483	3,737.3	3,945.7	+ 5.5

Fluctuations in Crude Stocks, by Grade or Origin, Since Pearl Harbor

(Thousands of Barrels)

GRADE OR ORIGIN	Outbreak of War for U.S. Dec. 13, 1941	High for 1942-1943 (Mar. 28, 1942)	Low for 1942-1943 (Dec. 12, 1942)	Current Data (Aug. 7, 1943)	Change from Mar. 28, 1942	Change from Dec. 12, 1942
Pennsylvania Grade	3,633	3,431	3,054	2,782	— 649	— 272
Other Appalachian	1,529	1,522	1,356	1,429	— 93	+ 73
Lima-Michigan	1,233	1,549	1,208	1,200	— 349	— 8
Illinois-Indiana	18,243	19,337	9,494	11,891	— 7,446	+ 2,397
Arkansas	2,591	2,977	2,068	2,663	— 314	+ 595
Kansas	7,400	7,696	6,898	8,338	+ 642	+ 1,440
Louisiana	12,348	13,669	12,732	14,822	+ 1,153	+ 2,090
Northern	3,849	4,223	4,745	5,113	+ 890	+ 368
Gulf Coast	8,499	9,446	7,987	9,709	+ 263	+ 1,722
Mississippi	2,202	2,445	1,174	1,280	— 1,165	+ 106
New Mexico	6,781	7,510	5,622	7,273	— 237	+ 1,651
Oklahoma	51,562	50,513	40,111	37,341	—13,172	— 2,770
Texas	81,676	96,123	102,130	102,109	+ 5,986	— 21
East Texas	20,549	23,677	24,468	21,073	— 2,604	— 3,395
West Texas	18,070	23,961	24,252	25,667	+ 1,706	+ 1,415
Gulf Texas	23,935	25,889	28,388	29,736	+ 3,847	+ 1,348
Other Texas	19,122	22,596	25,022	25,633	+ 3,037	+ 611
Panhandle	.....	.....	4,670	5,784	.....	+ 1,114
North	.....	.....	7,491	6,128	.....	— 1,363
South	.....	.....	4,879	5,549	.....	+ 670
Other	.....	.....	7,982	8,172	.....	+ 190
Rocky Mountain	16,267	16,628	13,934	13,444	— 3,184	— 490
California	34,574	38,454	31,965	32,658	— 5,796	+ 693
Foreign	2,644	1,354	150	152	— 1,202	+ 2
Total Gasoline-bearing in U.S.	242,683	263,208	231,896	237,382	—25,826	+ 5,486
Heavy in California	10,128	11,336	10,607	10,116	—21,452	— 491

percent. Louisiana's production was up 4.5 percent, Arkansas 1.6 percent, Colorado 5 percent, Kentucky 68 percent, Michigan 0.3 percent, Wyoming 4 percent. While Texas produced 13 percent more in January-July, 1943, than in the like months of 1942, increases by districts included 10 percent in the East Texas field, 30 percent in the rest of East Texas, 5 percent in the Panhandle, 38 percent in the upper Gulf Coast, 26 percent in the lower Gulf Coast. North Texas was off 6.6 percent, West Texas 1.6 percent, Southwest Texas 4 percent, and South Central Texas 9 percent.

The need for crude from the above states was accentuated by reduced output in the Middle West, Eastern States, and Oklahoma. Illinois production for January-July, 1943, was 27 percent smaller than for the first 7 months of 1942, and other decreases included 25 percent for Indiana, 37 percent for Mississippi, 14 percent for Oklahoma, 9 percent for Ohio, 45 percent for Nebraska, 4.6 percent for New York, 9 percent for Ohio, 10 percent for Pennsylvania, 5 percent for West Virginia, 6 percent for Montana.

U. S. Crude Runs to Stills and Refinery Capacity

(Thousands of Barrels)

STATE OR DISTRICT:	War Time Changes in U.S. Daily Average Refining Capacity: Available: Dec., 1941	Available: May, 1942	Available: July, 1943	Percent Used: Dec., 1941	Percent Used: May, 1942	Percent Used: July, 1943	War Time Fluctuations in Daily Average Refinery Runs of Crude: Peak Before U.S. Entry in War: Oct., 1941	Low After U.S. Entry in War: May, 1942	Current Data: July, 1943	Crude Runs in First 7 Months, 1942-1943: Total Amount: 1942	Total Amount: 1943	Daily Average: 1942	Daily Average: 1943	Percent Difference
East Coast, Texas, Inland, Texas Gulf, La. Gulf, Ark. & La. Inland	2,313	2,383	2,444	85.7	63.7	76.1	2,127	1,498	1,861	363,546	362,759	1,715	1,711	— 0.2
Appalachian	166	174	177	96.4	91.4	81.3	147	158	144	33,069	32,433	156	153	— 1.9
Ind., Ill., Ky., etc.	752	784	824	95.7	99.2	88.9	734	735	733	151,261	151,746	713	716	+ 0.4
Okla., Kansas, Mo.	413	418	416	73.6	86.1	81.9	368	359	341	74,282	72,272	350	341	— 4.2
Rocky Mountain	136	138	147	54.4	65.2	66.6	94	91	98	19,720	19,824	93	94	+ 1.0
California	787	787	817	77.3	78.3	90.5	618	605	740	122,191	151,316	576	714	+23.9
Total United States	4,567	4,684	4,825	90.1	75.2	81.1	4,088	3,446	3,917	764,069	790,350	3,604	3,728	+ 3.4

While crude run to stills in the United States totaled 790,350,000 barrels in the first 7 months of 1943, against 764,069,000 barrels in the like period of 1942, an increase of 26,000,000 barrels or 3.4 percent, the increase was accounted for by California, with other states in the aggregate charging about 3,000,000 barrels less of crude to stills. California's runs amounted to 151,316,000 barrels this year, against 122,191,000 in last year's first 7 months, an increase of 29,000,000 barrels, or 24 percent. There were nominal increases for the Rocky Mountains and the Middle West, and slight decreases for Oklahoma-Kansas, the Appalachian district, and the East Coast-Southwestern districts combined.

In line with the stepping up of crude production schedules since June, with Southwestern States assigned larger quotas, there have been meanwhile increases also in refinery runs, with plants of the Southwest and the East Coast refining districts called upon to process more crude.

U. S. Stocks of Major Petroleum Products at End of July, by Districts

(Thousands of Barrels)

REFINING DISTRICT	July 31, 1941	July 31, 1942	July 31, 1943	Percent Change: From 2 Years Ago	Percent Change: From 1 Year Ago
Gasoline: (Finished and Unfinished):					
East Coast, Texas, Louisiana and Arkansas	41,473	37,864	31,020	— 25.2	— 18.0
Appalachian	3,190	2,593	2,133	— 33.1	— 17.7
Indiana, Illinois, Kentucky, etc.	16,669	15,020	14,832	— 11.0	— 1.2
Oklahoma, Kansas, Missouri	6,801	6,757	5,995	— 11.8	— 11.2
Rocky Mountain	1,739	2,013	1,609	— 7.4	— 20.0
California	14,829	15,199	19,388	+ 30.7	+ 27.5
Total United States	84,701	79,446	74,977	— 11.4	— 5.6
Gas Oil and Distillate:					
East Coast, Texas, Louisiana and Arkansas	23,901	18,532	15,365	— 35.7	— 17.0
Appalachian	502	622	1,068	+112.7	+ 71.7
Indiana, Illinois, Kentucky, etc.	4,762	4,636	5,508	+ 15.6	+ 18.8
Oklahoma, Kansas, Missouri	1,664	1,762	2,041	+ 22.6	+ 15.8
Rocky Mountain	290	354	357	+ 23.1	+ 0.8
California	11,558	11,823	12,024	+ 4.0	+ 1.7
Total United States	42,677	37,729	36,363	— 14.7	— 3.6
***Residual Fuel Oil:**					
East Coast, Texas, Louisiana and Arkansas	19,155	17,231	13,962	— 27.1	— 18.9
Appalachian	612	666	531	— 13.2	— 20.2
Indiana, Illinois, Kentucky, etc.	3,740	3,615	3,287	— 12.1	— 9.0
Oklahoma, Kansas, Missouri	2,031	1,598	1,719	— 15.3	+ 7.5
Rocky Mountain	607	670	665	+ 9.5	— 0.7
California	54,615	43,155	36,512	— 33.1	— 15.3
Total United States	80,760	66,935	56,676	— 29.8	— 15.3
Kerosene:					
East Coast, Texas, Louisiana and Arkansas	7,203	7,151	5,605	— 22.1	— 21.6
Appalachian	174	380	368	+111.4	— 3.1
Indiana, Illinois, Kentucky, etc.	1,427	1,920	1,928	+ 35.1	+ 0.4
Oklahoma, Kansas, Missouri	647	645	674	+ 4.1	+ 4.4
Rocky Mountain	102	95	75	— 26.4	— 21.0
California	1,082	742	646	— 40.2	— 12.9
Total United States	10,635	10,933	9,296	— 12.5	— 14.9

* Exclusive of heavy crude in California.

U. S. Stocks of Motor Fuel at End of July in Recent Years

(Actual and in Terms of Days' Supply)

YEAR	Stocks, July 31, (Thousands of Bbls.)	Daily Average Demand in Succeeding Month (Thousands of Bbls.)	Days' Supply Represented by June 30 Stocks
1937	69,649	1,722	40.4
1938	77,838	1,784	43.6
1939	78,947	1,872	42.0
1940	89,609	1,852	48.4
1941	83,746	2,117	39.5
1942	78,245	1,735	45.0
1943	70,423	1,790	39.3

All refineries of the United States processed 3,865,000 barrels of crude daily in June, 3,917,000 daily in July, and 4,004,000 daily in the week ended August 14. The East Coast-Southwest plants processed 1,819,000 barrels per day in June, 1,861,000 daily in July, and 1,963,000 daily in the week of August 14. Plants of the Appalachian region, the Middle West and the upper Mid-Continent now are charging less crude to stills than they were at the middle of the year, while Rocky Mountain plants show no change. California refineries processed 729,000 barrels of crude per day in June, 740,000 daily in July, and 745,000 per day in the week ended August 14.

While the total demand for petroleum was about the same in the first 7 months of 1943 as in the like months of 1942, there has been material change in the proportions of the different products taken from the crude oil. Under curtailment of civilian use of gasoline, the total demand for that product in the first 8 months of 1943 was about 8 percent less than in the like months of 1942 and about 14 percent less than in the first 8 months of 1941. Production of gasoline has been reduced proportionally, however, by lowering refinery yields of that product in all districts. In June, 1943, the gasoline yield was down to 36.9 percent from 44.5 percent in June, 1941. Stocks of gasoline, consequently, are now comparatively low, in relation to demand. Inventories at the end of July, 1943, represented only 39.3 days' supply at the prevailing rate of consumption, compared with 45 days' supply a year ago and 39.5 days' supply two years ago, the current figure being the lowest for recent years. In most of the refining districts there are definite scarcities of gasoline, the demand for the product having been than expected in recent months. However, production of gasoline lately has been stepped up, and the output in July, 1943, was only 2 percent less than that in July, 1942.

While production of gasoline has been held down, it has been necessary to increase domestic production of kerosine and both light and heavy fuel oils; and these increases have been achieved by increasing refinery yields of those products as well as by charging more crude to stills.

Production of kerosine in the first 7 months of 1943 was 7 percent greater than in the like period of 1942, and there was a withdrawal of 768,000 barrels from storage, indicating an increase of 13 percent in the demand for that product. Refinery yield of kerosine was 5.2 percent in July, 1943, compared with 4.7 percent a year previously and 4.5 percent two years before.

Distillate fuel oil production was 8 percent larger in the first 7 months of 1943 than in the like months of 1942, but less came from storage, and the demand for the product apparently was about 4.4 percent greater than last year. Stocks of light fuel oil have not been increased normally this summer, and on July 31, 1943, were 3.6 percent lower than a year before, although potential demand is greater. Yield of gas oil and distillate was up to 13.2 percent in July, 1943, from 12.7 percent in July, 1941.

Residual fuel oil has been a particularly needed war-purpose product, and production of it was 15 percent greater in the first 7 months of 1943 than in the corresponding months of 1942. However, it was not possible to take nearly as much from storage, the withdrawal having totaled only 5,000,000 barrels, compared with 16,000,000 barrels taken from the tanks in the first 7 months of 1942.

Trends of Total Demand for Motor Fuel in First 8 Months 1941, 1942, 1943

(Thousands of Barrels; Data from Bureau of Mines)

MONTH	1941 (Actual)	1942 (Actual)	1943 (Forecasts)	Percent Diff. '41-'43	Percent Diff. '42-'43
January	47,389	52,192	44,800	— 5.4	—14.1
February	43,254	44,593	39,700	— 8.2	—10.9
March	50,498	53,493	45,600	— 9.6	—14.7
April	56,682	52,162	47,100	—16.9	— 9.7
May	60,895	55,079	49,400	—18.8	—10.3
June	59,622	53,319	51,100	—14.2	— 4.1
July	64,509	57,654	54,300	—15.8	— 5.8
August	65,644	51,542	55,500	—15.4	+ 7.6
Total 8 Months	448,493	420,034	387,500	—13.5	— 7.7
Daily Avge: August	2,117	1,663	1,790	—15.4	+ 7.6
8 Mos.	1,846	1,728	1,594	—13.6	— 7.7

Civilian consumption has been held down as much as possible by converting oil burners to other fuels and by other means. These figures indicate that the total demand for residual fuel oil this year has been close to that of last year, although lack of data on imports makes definite figures on demand unavailable. The yield of residual fuel oil for the United States was up to 28.9 percent for July, 1943, from 26.9 percent in July, 1942, and 24.4 percent in July, 1941. Stocks of residual fuel oil now are 15 percent lower than a year ago, with all refining districts showing decreases; and the inventories are 30 percent lower than 2 years ago. California stocks have been greatly cut down, and there is now a scarcity in that district; and inventories are seriously low also in the East Coast and Southwestern districts.

Indicated Demand for Petroleum and Products

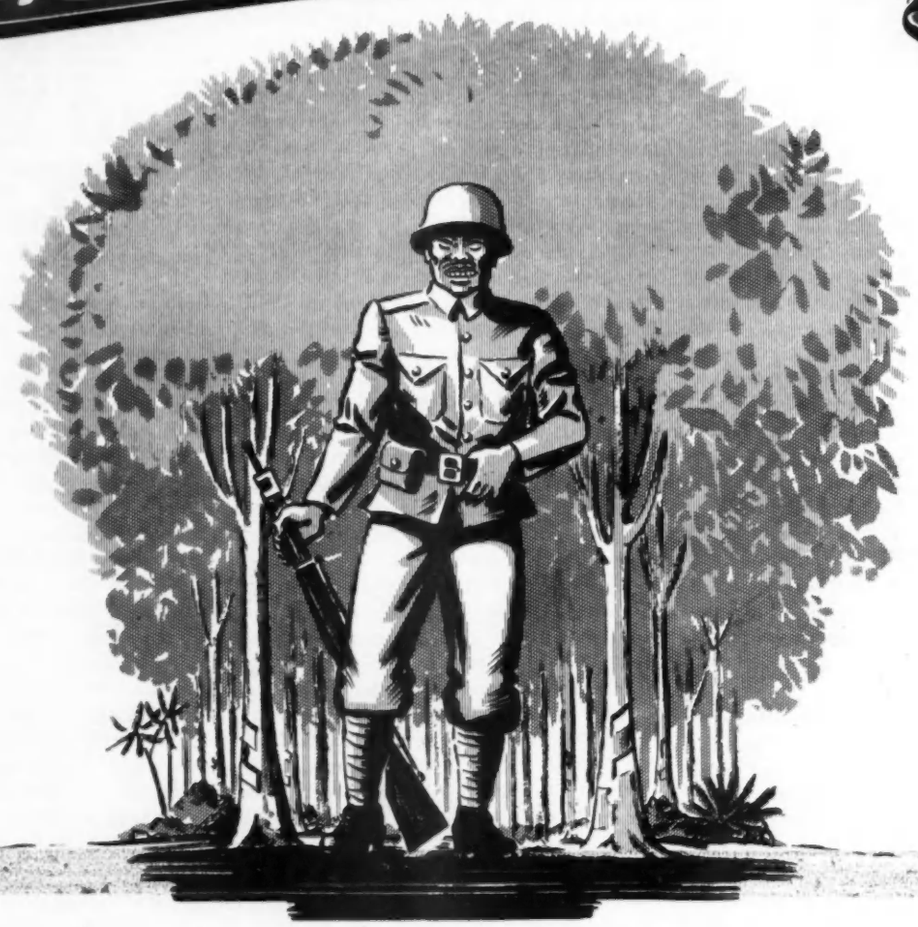
(Not Considering Imports in 1942 and 1943)

Based on Data from Bureau of Mines (thousands of barrels)

ITEM	JULY 1941	JULY 1942	JULY ‡1943	JULY Percent Change 1942-1943	FIRST 7 MONTHS 1941	FIRST 7 MONTHS 1942	FIRST 7 MONTHS ‡1943	FIRST 7 MONTHS Percent Change 1942-1943
All Oils:								
Production:								
Crude	118,251	111,782	127,141	+13.7	785,589	792,318	836,483	+ 5.5
Natural Gasoline	5,252	6,804	7,250	+ 6.5	34,873	47,613	51,120	+ 7.3
Benzol	271	.....	†	.....	2,020	597	†	.....
Total Production	123,774	118,586	134,391	+13.3	822,482	840,528	887,603	+ 5.6
Imports	7,264	.....	.....	.....	48,971	.....	.....	.....
Change in Stocks	—5,328	—7,293	+937	.....	—16,784	—43,874	—12,472	.....
Demand	136,366	*125,879	*133,454	+ 6.0	888,237	*884,402	*900,075	+ 1.7
Crude Oil:								
Production	118,251	111,782	127,141	+13.7	785,589	792,318	836,483	+ 5.5
Imports	5,331	.....	.....	.....	27,345	.....	.....	.....
Change in Stocks	—3,697	—6,395	—2,181	.....	—8,701	—1,858	+4,066	.....
Demand	127,279	*118,177	*129,322	+ 9.4	821,635	*794,176	*832,417	+ 4.8
Gasoline:								
Production	57,714	47,611	46,644	— 2.0	371,011	343,465	317,935	— 7.4
Imports	.....	.....	.....	.....	1	.....	.....	.....
Change in Stocks (Finished Gasoline)	—5,066	—8,423	—2,832	.....	—514	—14,756	—6,349	.....
Demand	62,780	*56,034	*49,476	—11.7	371,526	*358,221	*324,284	— 9.4
Kerosene:								
Production	5,406	5,134	5,890	+14.7	41,307	39,696	42,540	+ 7.1
Imports	.....	.....	.....	.....	43	.....	.....	.....
Change in Stocks	+1,026	+1,436	+1,059	.....	+1,123	+1,334	—768	.....
Demand	4,380	*3,698	*4,831	+30.6	40,227	*38,362	*43,308	+12.8
Distillate Fuel Oil:								
Production	15,746	16,149	16,916	+ 4.7	107,818	107,107	115,776	+ 8.0
Transfers from Crude	205	206	206	.....	1,298	1,368	1,654	+20.9
Imports	562	.....	.....	.....	2,449	.....	.....	.....
Change in Stocks	+4,308	+5,228	+3,896	.....	—263	—12,197	—8,577	.....
Demand	12,205	*11,127	*13,226	+18.8	111,828	*120,672	*126,007	+ 4.4
Residual Fuel Oil:								
Production	28,624	30,096	36,715	+21.9	192,749	203,613	234,095	+14.9
Transfers from Crude	944	1,439	1,430	— 0.6	5,746	11,632	12,396	+ 6.5
Imports	1,085	.....	.....	.....	16,754	.....	.....	.....
Change in Stocks	—257	+594	+797	.....	—8,544	—16,260	—5,107	.....
Demand	30,910	*30,941	*37,348	+20.7	223,793	*231,505	*240,438	+ 3.8

* Indicated demand not considering imports. † Included with natural gasoline. ‡ Bureau of Mines for first 6 months; July estimated with aid of A.P.I. weekly reports.

OIL IS AMMUNITION



SYNTHETIC RUBBER

When the Japs captured the Far East rubber plantations, the United States faced its most acute shortage in history. Nearly everything uses rubber in some form. The situation was desperate, the war might have been lost. To the rescue came petroleum, and within two years had accomplished a miracle by building a gigantic synthetic rubber industry from scratch.

Synthetic rubber is performing a thousand and one highly essential uses, many of them better than natural rubber. Airplanes, trucks and jeeps had to have thousands of heavy-duty tires and tubes. Tanks and other vehicles using crawler type tracks had to have rubber treads. Boats, aircraft, tanks, trucks and other engine powered vehicles had to have motor mountings, fan belts, hose, gaskets, insulated wiring, and many other products. Rubber had to be had for blimps, gas masks, raincoats, shoe soles, inflatable life rafts and boats, pontoons, life belts, life vests, seadrome mooring and marker buoys, crash pads, pilot seat cushions, goggles, bullet-proof gasoline tanks for airplanes, and many, many other products.

The needs were enormous. A single tire for a big bomber uses more rubber than 8 auto tires. Other bomber requirements boosts its consumption of rubber up to the equal of 36 passenger cars. A big battleship takes 75,000 tons of rubber. Each little scout car requires more rubber than a seven passenger limousine, and the number built staggers the imagination.

Oceans of Oil Needed
YOUR JOB IS VITAL FOR VICTORY

River of Oil

500,000 barrels of crude petroleum—30 miles from a railroad!

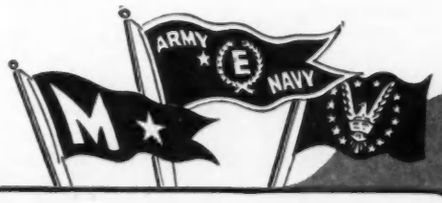
That was back in 1860—a year after Colonel Drake's first well began to produce riches, on Oil Creek, near Titusville, Pennsylvania.

The transportation problem was tough. But boats, barges, rafts—thousands of them—were pressed into service to form a veritable river of oil—down Oil Creek to the Allegheny to Pittsburgh.

Into this picture of river traffic, with its wild uncertainties and fluctuating costs, came the pipe line. It was one of the first oil field services filled by Spang Pipe, made since 1840 in the first pipe mill west of the Alleghenies.

Today, billions and billions of feet of Spang Pipe—now a National Supply Company product—are giving dependable service in oil fields, pipe lines, ships, all kinds of industries, homes, and other installations throughout the world.

All products of The National Supply Company have marched hand in hand with the ever-pioneering, ever-growing oil industry. National Oil Field Machinery and Equipment have been important factors in the development of every oil field in the world. National-built Superior Oil Field, Industrial and Marine Engines are internationally famous for their power and economy. The National Supply Company serves industry and the individual everywhere . . . and will be an important factor in the peace-time expansion of tomorrow.



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Salt Water Disposal Injection Systems

Where applicable, close system of disposal eliminates or minimizes the disadvantages of open system. It is less expense to install and maintain, and reduces corrosive characteristics resulting from contact with the air.

By I. W. ALCORN, Division Engineer,
The Pure Oil Company

THE disposal of oil well brines, salt water, has, probably from the inception of the oil producing industry, been one of the troublesome and costly components of cost of producing oil. Much literature is available concerning these problems of the past; therefore, no attempt will be made here in way of a review.

A later concept has been to dispose of this brine by putting it back in the ground, either in the sand or formation from where it came or, as is usually the case, in some shallower sand that indicates good permeability characteristics. In confining ourselves, therefore, to the injection system of salt water disposal, we find that this may in turn be considered in two ways.

First, the so-called "open system" and, second, what is referred to as the "closed system".

Open System

The "open system", as the name implies, consists of providing a large open tank in connection with the filtering system. The iron compounds, as they occur in the reservoir, are in the ferrous state. On contact with the oxygen in the atmosphere, there is a chemical change from the ferrous to the ferric state, resulting in an iron floc precipitation. Obviously, in nearly all cases, this precipitate must be filtered out as it would, in time, tend to clog up the flow of water into the injection sand face.

One of the often overlooked factors in open systems is that of time lag of the chemical reactions. In most such systems, the incoming salt water is aereated and treated with chemicals to hasten the precipitation process. Under all these conditions, the settling tank should be large enough to provide time for the complete reaction to take place before filtering; otherwise, some precipitation will take place after passing the filter.

Another important factor in open disposal systems is that of corrosion of equipment, principally tanks, lines and casing or tubing of the injection well. It is, I believe, generally conceded that oil well brines become very much more corrosive after coming into contact with the atmosphere.

Summarizing, then, the disadvantages of the open system of salt water disposal, we have:

1. High initial cost of plant (necessitated by aereating tower, large earthen, earthen-treated or concrete settling tank; excessive filtering capacity, occasioned by artificial acceleration of precipitation.

2. High maintenance cost, especially when it is necessary to continuously chemically treat the water, both for aiding precipitation and preventing growth of algae.

3. An intensifying of the corrosion characteristics.

Closed System

The "Closed system" is an attempt to eliminate or minimize these above disadvantages.

If it is possible to prevent the salt water from ever coming in contact with the atmosphere, then we prevent the precipitation of solids and thereby reduce greatly the filtering operation. This may be translated into smaller and lower-cost filters. We also eliminate the necessity and cost of continuous chemical treatment of the water, and, finally, we virtually eliminate the factor of corrosion without resorting to expensive corrosion-resisting equipment.

Two separate and distinct problems or cases have confronted us in installing closed saltwater disposal systems.

In case 1—Louisiana—the field is located in the center of a lake and consists of only the one operator and one royalty ownership. Under these conditions there are no lease lines requiring separation of the oil runs. In this case, the flow of oil, water and emulsion is from the well into the separator; thence through flow lines to the central oil treating and salt water disposal plant (Figure 1), the large, tall tank being the pressure flow treater, the center tank the filter and the small vessel the volume tank. In general and, if possible, approximately 50 pounds pressure is carried on the separators and 7 pounds or 8 pounds carried on the treater, filter and volume tank. From the treater the clean oil flows to the only stock tanks in the field. The water passes to the filter where all foreign matter is removed and the filtered water passes to the volume tank. From the volume tank the water flows by gravity, plus the head of 7 pounds, to the injection well where it is disposed of by gravity. The volume tank serves also to backwash the filter. By valve manipulation, the pressure may be released on the top side of the filter producing flow of clean water from volume tank back through the filter.

In this initial installation, the outlets of the separators were equipped with fluid meters in order to maintain records as to the fluid production characteristics of each individual well. Also, in some cases where separator pressures had to be held near atmosphere for wells to flow, provision was made for small liquid level actuated centrifugal motor driven pumps.

In Case 2, a Texas field, we have a somewhat different situation in that there exists a multiplicity of leases and royalty ownerships. Under these conditions, the oil from each lease must be accounted for before running to the

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WHEN the time comes, any work-over job can be done easier, at lower cost, and with greater assurance of success if the hole is large. The practice of setting the casing to the full depth of the well, cementing it solid, and then gun perforating selected zones, provides a large hole for future operations. During the life of the well, this large-diameter working space will pay for itself many times over, besides providing additional production advantages. Moreover, the solid cement sheath protects and supports the casing and eliminates water entry.

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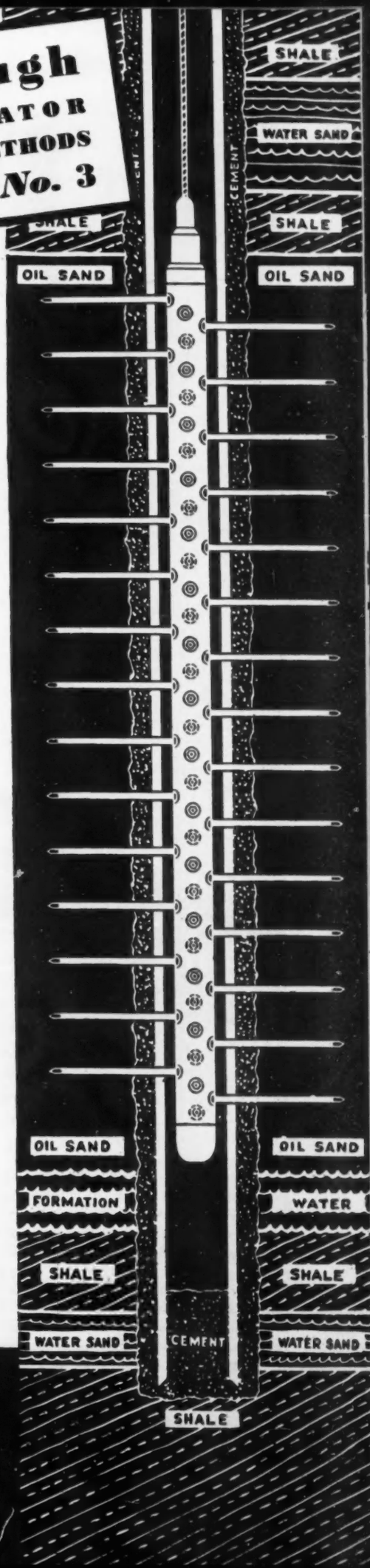

16 SERVICE LOCATIONS

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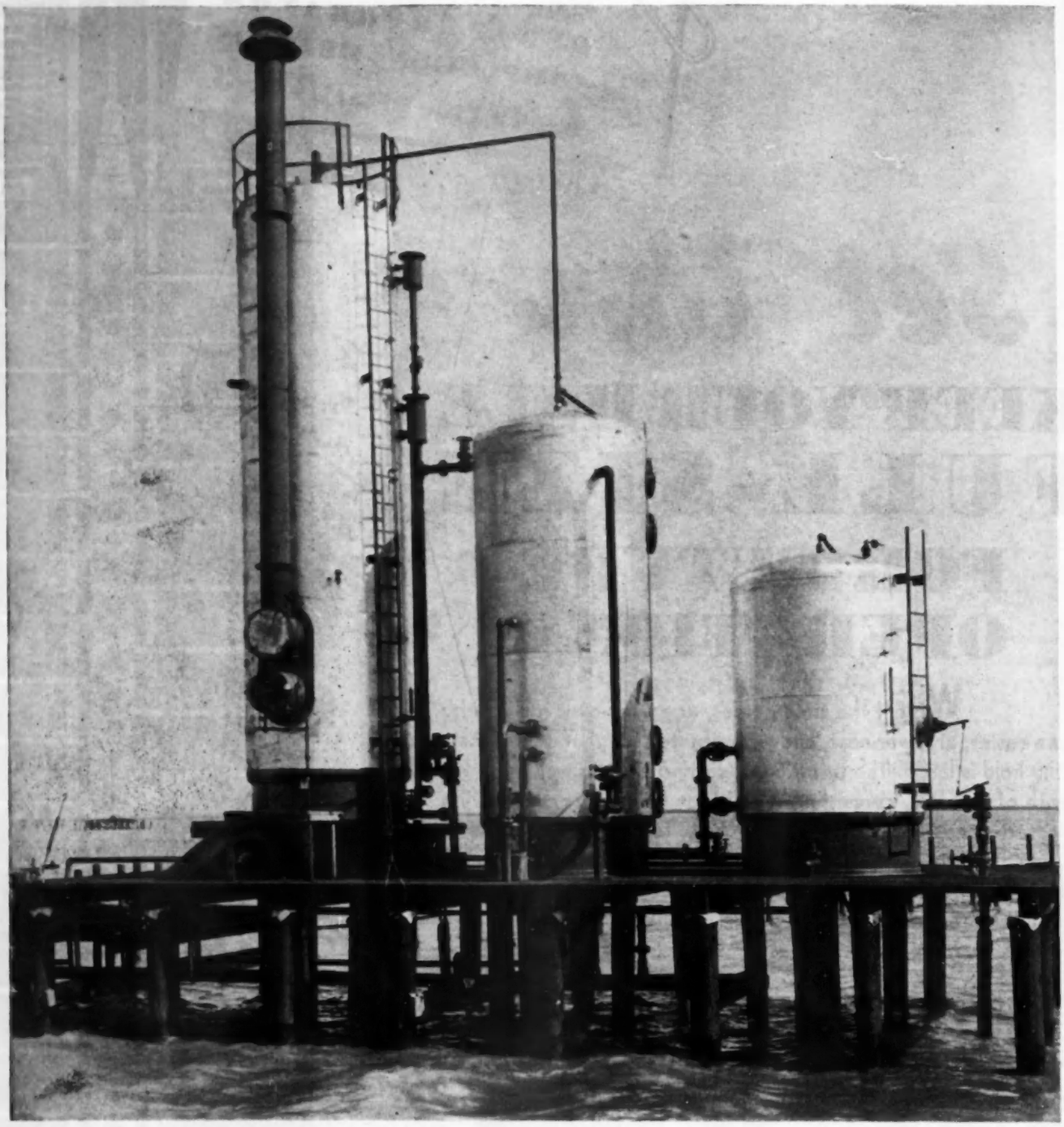


FIGURE 1

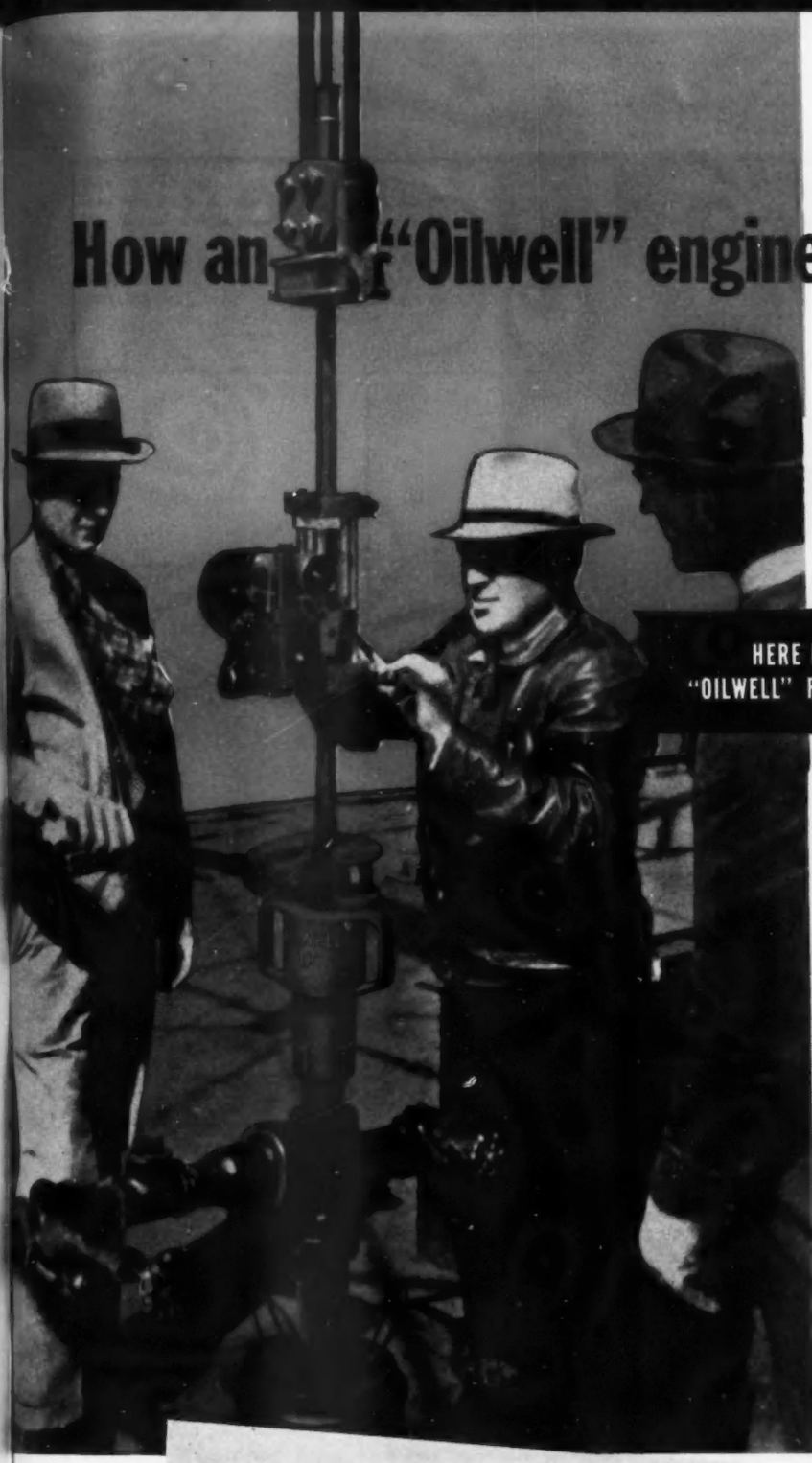
central oil treating and salt water disposal plant. Therefore, it is necessary to provide field stock tanks as in a normal operation. A field gathering system was installed using a central pump station for both gathering the oil and water from the field stock tanks by suction and for delivering the clean oil to the pipeline company. All the field gathering lines were computed on basis of emptying the stock tanks at a given rate of time under 20 inches of mercury vacuum (Figure 2).

The problem under this type of operation, as before, is to exclude at all times the atmosphere from contact with the well fluid, particularly the salt water. To accomplish this, all tank batteries are connected to a field gas system and equipped with pressure regulators set to maintain 2-ounce gas pressure in all the tanks continually. The tanks, of course, are equipped with a venting system and vacuum-pressure relief valve but, with the gas line system connected, there should be no occasion for the tank breathing in air even while being emptied.

In addition to these precautions to exclude air, the stock tanks are equipped with outside gauges and automatic shut-offs. The only time that a tank need be opened is when it is gauged and thiefed. At this time a small amount of gas is continually escaping from the gauge hatch and the oil, being on top of the water, serves as an oil seal preventing contact of the air with the salt water.

Conclusions

The results to date, after one year and 7 months operation, indicate that where practicable, the closed system for salt water disposal is desirable from the standpoint of low initial cost, mini-



How an "Oilwell" engineer found the answer to a pumping problem

HERE IS A TYPICAL EXAMPLE OF HOW "OILWELL" FIELD ENGINEERING SERVICE WORKS

FREQUENT rod breaks in a number of 5400-ft. wells were causing an Oklahoma producer no end of trouble, interrupting production and necessitating costly fishing jobs. There was no indication that the ¾-inch sucker rods were overloaded; but the fluid level was known to be low, and there was evidence of some bottom-hole difficulty.

At the request of the manager of a nearby "Oilwell" store, an "Oilwell" subsurface equipment engineer called on the producer and made a careful analysis of the pumping characteristics of the wells. Weighing the wells with a dynamometer, which accurately records pumping conditions not perceptible to eye or touch, indicated that the pumps were pounding fluid, setting up a vibration, which caused the premature rod failures.

Discussing his analysis of the problem with the producer, the "Oilwell" engineer showed how the trouble could be remedied by changes in operation. The producer followed the engineer's recommendations with the result that sucker rod failures have been avoided with no decrease in production.

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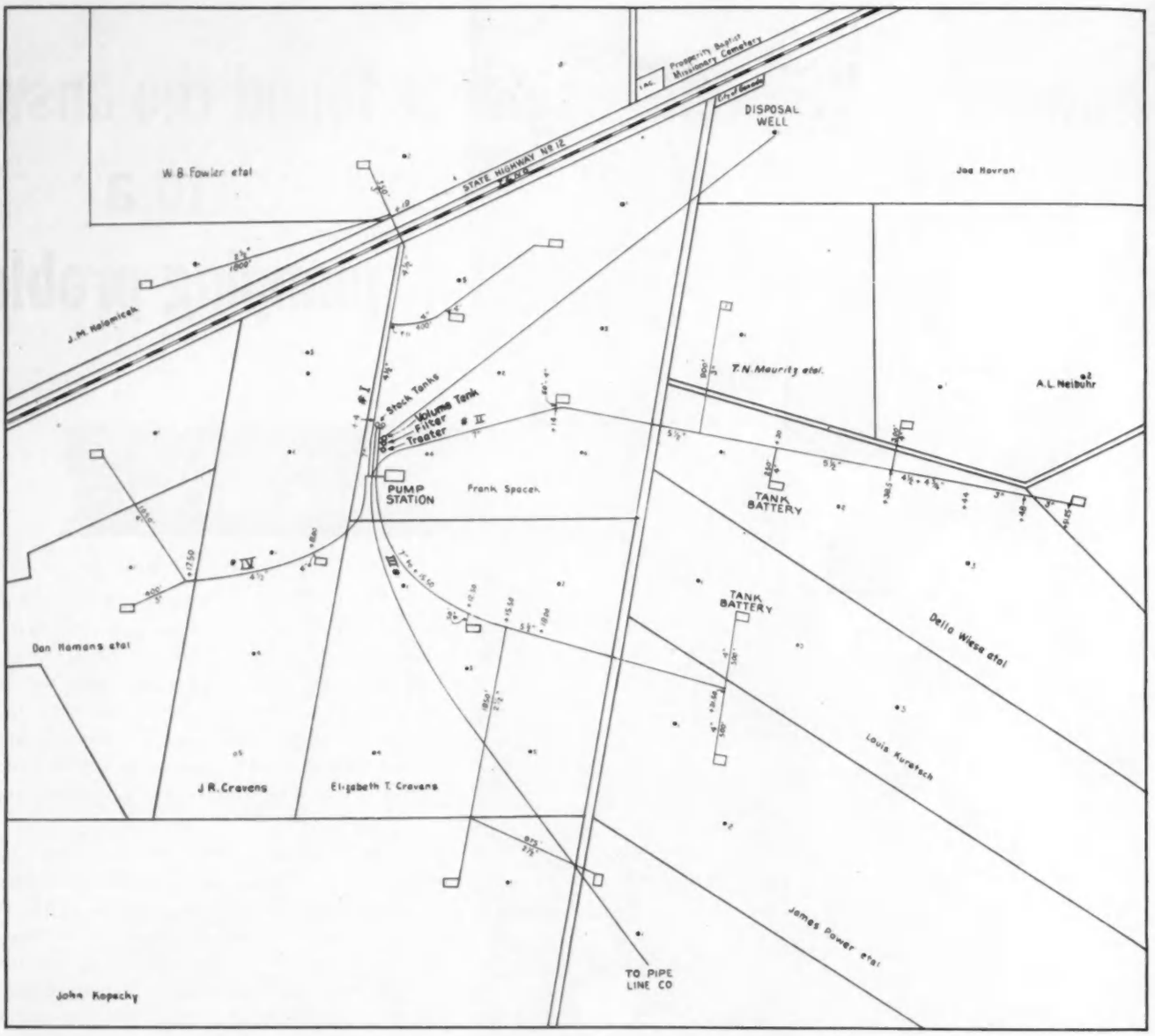


FIGURE 2

mum maintenance cost, due primarily to elimination of current chemical treatment of salt water to hasten precipitation and destroy algae, and apparent minimizing of corrosion.

Any injection system, whether open or closed, depends largely for its success upon the sand available for disposal. Obviously, a coarse, highly permeable, porous sand with low pressure head is to be desired. Sands of Miocene age, as generally occurring in coastal Louisiana, seems to be ideally suited to injection disposal of salt water. In the Louisiana installation, some 1,950,000 barrels of salt water have been disposed of by gravity. Currently, 4000 barrels per day, which represents approximately the capacity of the central oil treating and salt water disposal unit, is being cared for in this fashion.

The installation of any salt water injection disposal system requires careful consideration of all the factors relating to it if best results are to be achieved. The closed system involves more than the usual number of mechanical problems but these are susceptible of solution.

About the only difficulty so far encountered is chemical in nature. Shortly after the filter was put in operation, a black deposit was noted on inside of the gauge glass. At the same time the backwash water began to carry some black, finely divided material. This material was identified as iron sulphide by settling and treating the residue with hydrochloric acid. The original of this iron sulphide was believed to be the by-product of an anaerobic microbiological organism tentatively identified as Spororvibrio Desulfuricans, one of the sulphur splitting group. Backwash water increased in coloration and filter required more frequent washing. No chemicals thus far have been used to kill the anaerobic bacteria. The ordinary chemicals, containing chlorine used for this purpose, cannot be used as they would precipitate other solids. Other chemicals are unavailable or too costly at this time. The only solution of this problem to date is a periodic injection of 15 percent inhibited acid into the injection well.

Over a period of one year and 7 months, one such injection has been made.

It is not to be presumed that the closed system should be used under all conditions, but where it is applicable, considerable advantages may be gained.

The gouge is held with the tip parallel to the side of the pipe, and the blow carried down into the body of the joint from the shoulder. The metal washing out ahead of the heating flame is plainly apparent as it flows across the face of the joint three-quarters of the way down to the pin end of the joint. Two similar cuts the length of the drill-pipe thread sever the joint to that point.

Flame-Gouging Salvages Pipe Speeds Drill-String Reclamation

By ELTON STERRETT, Staff Writer

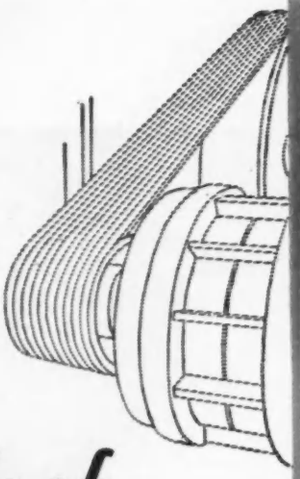
CAREFUL inspection of the drill pipe put aside on the rack, supplementing that given each joint every time it is run into the hole or racked in the derrick, develops that either the pipe or the joint—rarely both— is the cause for the unit being rejected or returned to the warehouse yard for rehabilitation.

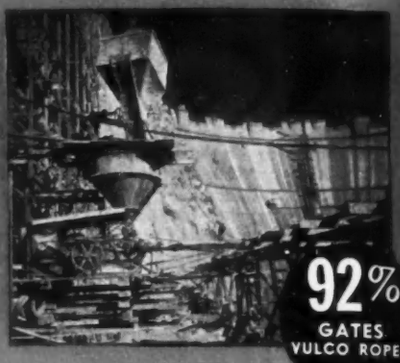
If the drill pipe is worn past use, or has developed fracture or other failed section during operation, the question becomes simply one of whether the tool joint is recoverable or not. If the joint still has value, it is cut from the pipe and the threads reconditioned in the usual manner.

Likewise, if the joint is worn too far out of round, the threads are galled or any of the other types of joint wear are evident, and the pipe is still in good condition, the problem becomes that of removing the joint without damaging or overstressing the pipe—by heating or otherwise—during the preparation for installing a new joint. Burning the old joint from the pipe, using the usual cutting torch, has long been practiced but requires the exercise of more than the skill with the torch possessed by the usual pipe-line gang replacement for the regularly trained and experienced welder; all too frequently "gone for the duration."

Development of a method whereby flame-gouging, as contrasted to the usual torch-cutting, is used for removal of the old joint simplifies the procedure and affords the relatively light threads of the drill pipe the maximum of protection. Basically, the difference between flame-gouging and burning off with the cutting torch lies in the use of a shaped flame instead of the conical type formed with the cutting torch. The gouging flame may be directed parallel to the axis of a pipe joint or tangential to the circumference, without tending to impinge against or undercut below the line of contact.

For reclaiming pipe with the flame-gouging tip on the cutting torch, the joint to be removed is cut through parallel to the axis of the joint and nearly to the roots of the threads inside





BOULDER DAM

Back in 1935 when Boulder Dam was still the biggest thing mankind had ever built, Gates Vulco Ropes were already first choice of America's leading Engineers. More than 92% of all V-belts used in building Boulder Dam were Gates Vulco Ropes.

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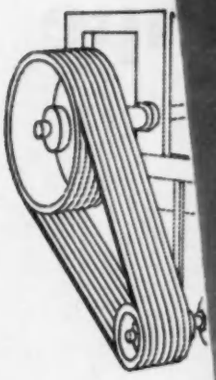

AMERICAN AVIATION INDUSTRY

In 6 of America's largest aircraft-producing units, 63% of all the belts now driving machines are Gates Vulco Ropes. Where belts are subjected to severe heat and oil conditions, Gates has supplied the aviation industry with thousands of special heat and oil resisting belts. These belts, made of a special synthetic rubber, withstand severe heat and oil conditions twice to three times as long as V-belts made with natural rubber.

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In many ways the greatest project of all—and, here again, 94% of the V-belts selected were Gates Vulco Ropes.

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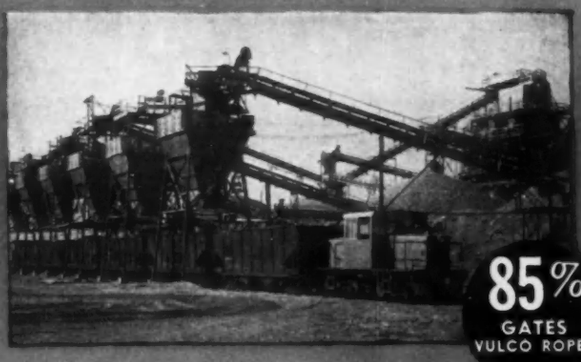
Gates began supplying industry with V-belts made entirely of synthetic rubber in 1938—just when the first big units of Grand Coulee were nearing completion. On this mammoth engineering project, Gates Vulco Ropes totaled more than 76% of all the V-belts used.



COLORADO RIVER AQUEDUCT

American Engineers once more gave Gates Vulco Ropes predominantly first place. To build 91 miles of tunnels, 60 miles of canals, 56 miles of conduit, 3 immense aggregate plants and a diversion dam 320 feet high, 85% of the V-belts chosen for the work were Gates Vulco Ropes.

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Between the two longitudinal or axial cuts a single transverse gouge is washed to separate one half of the box end of the joint from the remainder of the unit. Here, again, the tangential placing of the flame with respect to the metal being removed is plainly apparent. Washed metal is visible adhering to what is now the lower side of the joint and splashed out clear across the pin thread.

the joint metal. Two cuts are made, spaced approximately 180 degrees apart, the cuts being washed with the gouge from the shoulder of the joint forward into the body of the joint. These washed cuts are wider than those usually made with the cutting tip, and the metal is flowed from the cut rather than oxidized by the excess oxygen fed through the cutting tip.

Then, using the same gouging tip if desired, the joint is washed through below the end of the drill pipe between the two cuts or grooves previously made. This in effect severs half of the pipe-gripping section of the joint, leaving it held to the other section only by the relatively thin strips of metal lying within the threads of the drill pipe. The pipe is rotated until the cut-out portion lies uppermost, when a single sharp blow with a sledge is usually sufficient to clear the main portion of the joint from the pipe. The other half will either fall free when the pipe is rotated, may be lifted off in position, or can easily be jarred free with a light, hand hammer and blunt-nosed tool, striking against either of the washed surfaces at the point of severance.

Using this procedure, an average pipeline welder can remove a tool joint from a pipe in from three to five minutes, obtaining from 25 to 30 removals per cylinder of oxygen.

If the joint has been seal-welded to the drill pipe in addition to being bucked tightly onto the threads, it is of course necessary to wash away or gouge out

Following isolation of the break-away section, if the joint has been seal-welded to the pipe, it is washed free with a repetition of the technique used in making the transverse cut, care being exercised to see that the washing effect is stopped before the metal removal can reach the depth of the thread tips on the pipe end underlying the weld, as any reduction here ruins the pipe joint irreclaimably.

UNITIZATION IS NOTHING NEW

Here's a Unitized Rig Built in 1883!

Unitizing of drilling rigs has been widely publicized in recent years as a new trend. Logically enough, it means the ability to haul the rig, in toto, on a single vehicle. Actually the advent of huge tandem trucks likely had more to do with making rig unitization possible than changing equipment designs. Paved roads helped a lot, too. As increased drilling depths called for heavier equipment in the 1910-20 era small trucks on muddy roads just couldn't move the whole outfit singly.

ARMY E NAVY

We proudly fly this flag . . . . Uncle Sam's way of saying "Well Done" to Gumbo Buster

Actual facts prove, however, that the first rotary drilling rig ever built was a unitized rig. We present a picture of it here. Originally designed by Baker Brothers of North Dakota Territory in 1883, it was taken over by American Well & Prospecting Company in 1896, improved and developed for practical oil well drilling, and placed on the market in 1901. To change locations this complete rig, except for the "engine," was loaded on a wagon and hauled off. The "engine" pulled the wagon.

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the seal weld before attempting to knock off the pipe. Some operators find it easier to carry the washing operation in through the metal of the end or shoulder of the joint rather than attempt to confine the flow to the seal weld. This process requires slightly more oxygen than the heating of the weld bead alone, but permits the work to be started farther from the metal of the pipe than when the weld alone is removed. It seems to be easier for the less-experienced operator to control the penetration of a gouging cut when the metal is the same height on both sides of his cut. The slight excess of oxygen consumed in this way is much less costly than a replacement joint of pipe, required if the gouging cut be carried too deep and the pipe nicked or marred at the base of the threaded portion.

By cutting through the joint almost to pipe-thread tips, a small shoulder is left on the pipe at the site of the former seal weld, this metal being easily ground off to present a smooth, evenly curved surface before the next joint is bucked into place.

The gouging tip used for this work is a special type of tip, designed expressly for the removal of surface metal. It has a comparatively wide orifice and operates at low pressure. The resultant low velocity of the oxygen stream renders it more readily controlled by the operator, while oxygen flow is rapid enough to insure practically instantaneous washing away of the metal as it becomes molten, insuring speed throughout the operation.

One company, using the method outlined above for removing tool joints from standard strings of drill pipe, spends a little more than the usual time preparing for the job, the two axial cuts on the joint being laid out with a curved template which carries an aperture in the face for marking the side of the joint over which the template is laid. The marking device is cut so as to cover approximately 190 degrees of arc around the joint. The joint is marked through the identification opening on this side, so as to indicate the wide side after the washing job is completed. The transverse cut is made between the cuts on the side carrying the mark, so as to be sure that the section which is still attached to the remainder of the joint will be slightly less than the diameter of the pipe—insuring complete severance of the first portion to be removed with a minimum of pounding or distortion on the thread on the drill pipe itself. With the cuts made, it is necessary only to leave the mark visible on top of the joint to insure that the sledging will be done in a direction to insure proper clearance even with specially formed threads.

This plan of marking the cut-away section so as to insure less than 180-degree grip of the sledged section is to avoid the damage occasionally observed on the threads when the cut-away portion was less than 180 degrees around the thread, and when the curved ends of the threads on the larger portion tended to tear away the threads at the point of contact—especially when the first blow of the sledge failed to remove the joint, and repeated hammering was required.

By sledging away the heavy portion of the joint with a cut end slightly less than 180 degrees across, the lighter portion of the joint still remaining on the pipe joint may be backed around the thread with a hand hammer and drift, or may be unscrewed with a wrench which will span the curved section of metal and which will engage the cut or washed edge without reaching to the thread of the drill pipe below.

Use of the gouging instead of the cutting flame is said by one operator to reduce the damage of fires from heated sparks, as the flow of metal from a gouge cut is heavy, tending to drop directly under the joint being cut, rather than to fly considerable distances, as is the case with a cutting torch when attempting to direct a cut four or more inches in length axially along a joint with the usual conical flame and high-pressure oxygen.

Pipe from which a joint has been removed by either method should be given a light threading or chasing cut, so as to insure removal of any irregularity on the thread faces. If no equipment is available for chasing the threads, they should be carefully inspected and even a slight mark removed by careful hand filing. Before a new or replacement joint is run over any thread, it should be checked with a thread gauge to determine if there has been set up any distortion which, although not visible, might cause thread damage or imperfect seating between pipe and joint surfaces.

A tool joint which has been prepared for being knocked free of the still usable drill pipe. The gouging tip has sliced through the metal beyond the end of the pipe, has cleared smooth grooves through the metal to the tips of the underlying threads, and has clearly cut the seal weld from the remainder of the joint, insuring that a single blow of a sledge just beyond the radial cut will remove the heavy part of the joint, once the pipe has been turned to bring the cut uppermost. Illustrations courtesy of Air Reduction Sales Company.

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Fort Worth, Freer
Houston, Kemp City
Kilgore, La Ward
Odessa, Pampa
San Antonio, Sundown
Wichita Falls

Non-Marine Wasatch Vast Rocky Mountain Potential Oil Source

By J. B. CRAPO, Geologist

IT HAS long been known that the Wasatch formation in Northeastern Utah, Northwestern Colorado and Southwestern Wyoming contained many extensive beds of tar-saturated sandstone. In fact they are too numerous to enumerate here. The largest and most extensive deposits are in the Uintah Basin and the Roam Cliffs in Utah and Colorado. These tar sands were the first evidence of oil to be observed in these non-marine sediments. Because they were non-marine and supposedly non-organic, it was believed that they could not be a source for petroleum or gas. Actual production has disproved this belief, yet the area is receiving comparatively little attention despite the shallow depth of the formation and the need for additional oil sources.

The first real production to come from these beds was the discovery of gas in the White River structure 20 miles west of Meeker, Colorado, over 25 years ago. This gas was "pulled" and made into carbon black.

The next discovery was oil and gas in the LaBarge field in Lincoln County, Wyoming, in 1924. For information on what this field has done, I quote a paragraph from a letter written by Pierre LaFleiche, Mineral Supervisor, Casper, Wyoming, to Fred Cook of Clarendon, Texas, July 22, 1943:

"The production is obtained from the Tertiary sands lying at depth from 650 feet to 1000 feet. The first sand at about 650 feet is about 10 feet thick and fairly persistent throughout the field, however, the sands in the zones below are lenticular in character and vary greatly in areal extent and thickness. There are approximately 131 producing oil wells and 3 active gas wells in this field. About 18 wells have been plugged and abandoned in the field proper. The initial production of the wells will run from 5 barrels to 300 barrels per day and the field production is in the neighborhood of 2000 to 2100 barrels per day. . . .

"The total production of the field will run about 8,000,000 barrels to the first of 1942."

The next production was the Hiawatha field in Moffat County, Colorado, in 1925. The discovery well at 2220 feet produced 40,000,000 cubic feet of gas with 800 pounds pressure. This field was taken over and developed by Mountain Fuel Supply Company and the gas piped to Utah points. Oil was also found in some of the deeper sands and is now being produced.

Later Powder Wash Dome which lies 25 miles southeasterly from Hiawatha was drilled and a 34,000,000 cubic foot gas well discovered at 2152 feet, pressure 685 pounds, by Mountain Fuel Supply Company. This field is now producing both oil and gas.

The next important discovery was a gas well in 1938 on Big Piney Creek, 10 miles west of Big Piney, Wyoming. Since that time two more wells and an oil well have been drilled on this structure which is an anticlinal fold 16 miles north of the LaBarge oil field in Sublette County. This development was done by Wyoming Petroleum Corporation of Salt Lake City, Utah.

While the size of the oil well has not yet been determined, the discovery of 46-gravity oil is important. The Big Piney structure is many times larger than the LaBarge field and can well develop into a sensational discovery.

With all these discoveries and development of the Wasatch beds the present writer is forced to conclude that petroleum and gas is present in quantity and must be indigenous to the formation in which it is found.

W. T. Nightingale, chief geologist of Mountain Fuel Supply Company, made some pertinent observation on this subject in a paper read before the American Association of Petroleum Geologists. Nightingale has worked with the Wasatch formation since his company took over these fields, and is perhaps the best authority on this important subject. In his paper, which was published in the Association Bulletin, Vol. 22, No. 8, August, 1938, Nightingale states:

"A critical examination of all evidence pertaining to the problem of the occurrence of petroleum and gas in the non-marine sediments of the Hiawatha member of the Wasatch formation at Powder Wash indicates that these hydrocarbons are indigenous to the formation in which they are found. Powder Wash dome is a gentle and regular upfold with no indication of any faulting or fracturing on the structure or in the general area that could in any way be interpreted as channel forming for the vertical migration of any hydrocarbons from younger or older formations into the present producing reservoir sands of the Hiawatha member of the Wasatch formation."

If this is true it opens up a vast field for research in a new and practically unexplored potential oil and gas empire in the Rocky Mountains.

There are over 20,000 square miles of these Eocene beds in the area mentioned waiting to be explored. The production at LaBarge and so far at Big Piney is shallow. The gas wells at Big Piney came in at 912 feet, 945 feet, and 1600 feet; the oil well at 1138 feet. No dry holes have been drilled on this structure. With reference to the source of petroleum and natural gas, there is much yet to be learned. A chemist can analyse these hydrocarbons and tell us what they are made of, but he cannot tell what made them.

It is the writer's belief that in the final analysis, oil itself is a better evidence of oil than any organic source material in the beds. Why condemn and back away from these non-marine sediments simply because they are non-marine, when they are teeming with oil itself, crying to high heaven for recognition?

Nature has been kind and left its "books" open in this area to be read by all who will.

Perhaps when operators with idle equipment in areas where production is restricted, learn of this new unexplored and undeveloped area, they will give it the attention it deserves. There is no over-production or restrictions on production. Highest prices for crude oil and gasoline, shallow drilling are some of the things to encourage exploration.

Tractor Tows and Powers Flexible All-Purpose Portable Pump

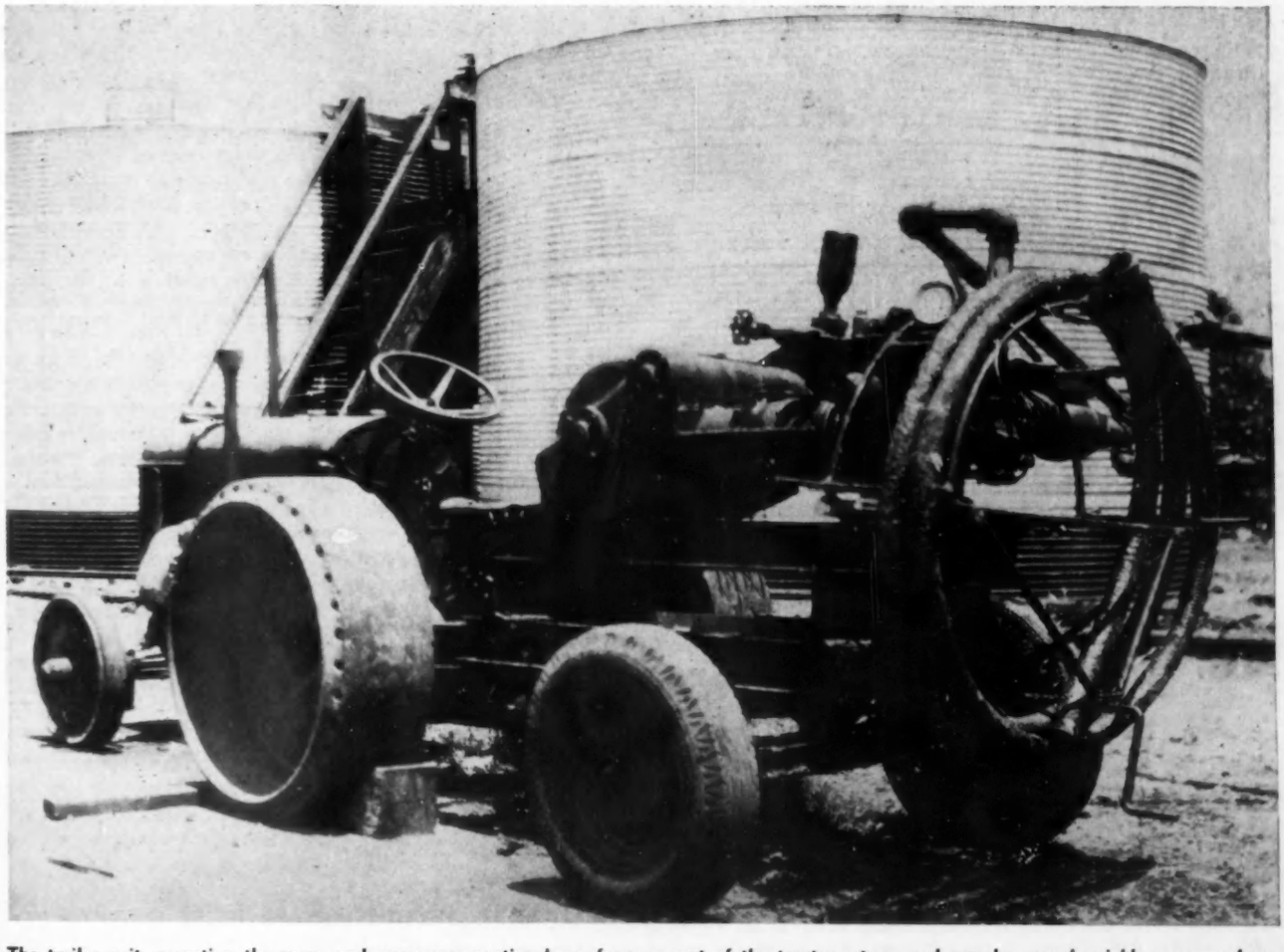
Sliding member of pump base permits tractor power-take-off to drive pump, while providing means for removing drive chain while moving equipment between jobs so as to avoid subjecting it to possible distortion or injury

WHEN draining sumps at flow tanks, cellars at producing wells, or transferring oil in an emergency when the usual set-up of fixed pumps is not available, a flexible, all-purpose pump can save much time and eliminate many connecting lines which otherwise would have to be run to provide the various points with a centralized pump manifold. Such a pump unit, mounted on a two-wheeled trailer, may be moved quickly over ordinary lease roads, and may be so arranged as to take its power from the unit towing it.

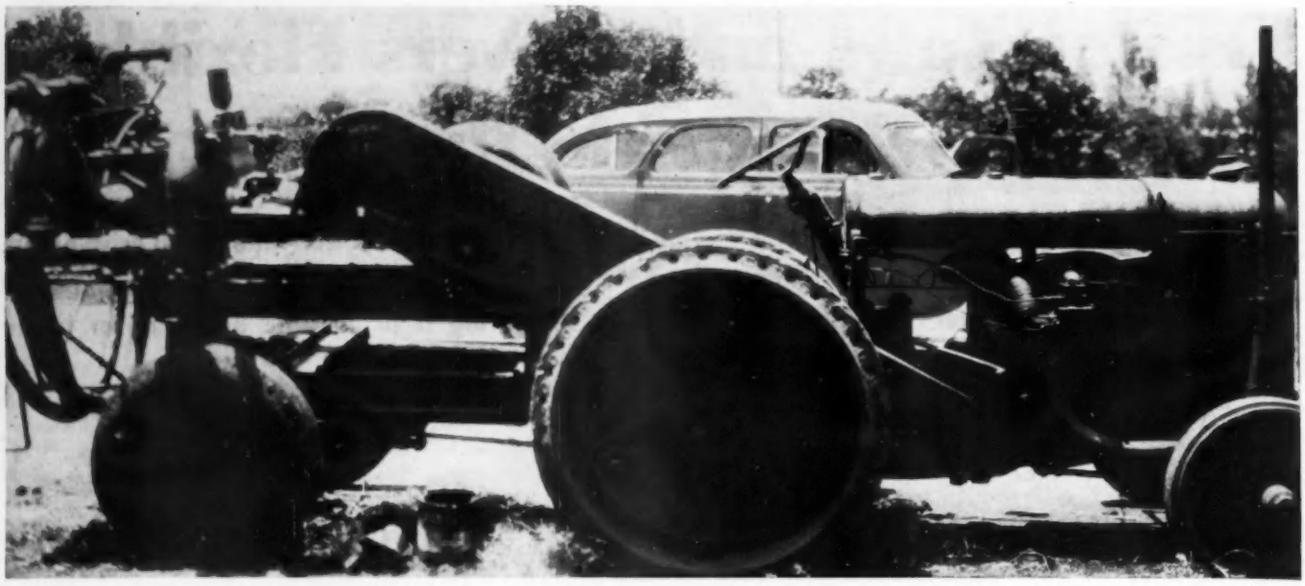
One such trailer is built up on the front axle salvaged from a discarded truck, with the king bolts and steering mechanism locked so as to provide constant right-angled set between the wheels and the axle. On the axle as a foundation, a box frame is attached directly without springs, the two side members consisting of heavy channels, with cross-members serving as spacers. The channels are set with the backs or flat surfaces outward, with all rivets countersunk to maintain a smooth exterior.

Over and around this sub frame is placed a second frame, formed from channels of the same size as those used for the base section, these latter being turned so that the flat sides contact those of the base, with the transverse members carried across their tops, and riveted through the flanges. The cross members thus serve as supports to hold the two units in alignment, with slots being cut through the outer member to accommodate tightening bolts carried in and rigidly fastened to the base member.

The sub-frame is linked to the tractor or towing unit by means of cleavises attached to the front ends of the two longitudinal frame members in such a manner as to permit the trailing unit to absorb road inequalities without racking the frame, while the method of attachment to the axle prevents lateral movement of the trailing axle with re-



The trailer unit, mounting the pump and emergency suction hose, forms a part of the tractor set-up, and may be moved quickly over any lease road and put to pumping without time out for laborious or exacting connection work.



The pump is chain-driven from the power take-off shaft of the tractor, an adjustable chain guard protecting the operator and aiding in keeping the drive clean during pumping operations. The guard is quickly detachable to permit chain removal while unit is being transported between jobs.

spect to the drive wheels of the tractor. The trailer wheels and those of the tractor thus form a rigid member with regard to lateral movement, without being held rigidly in one plane, thus to be overstressed if one wheel be raised or lowered excessively.

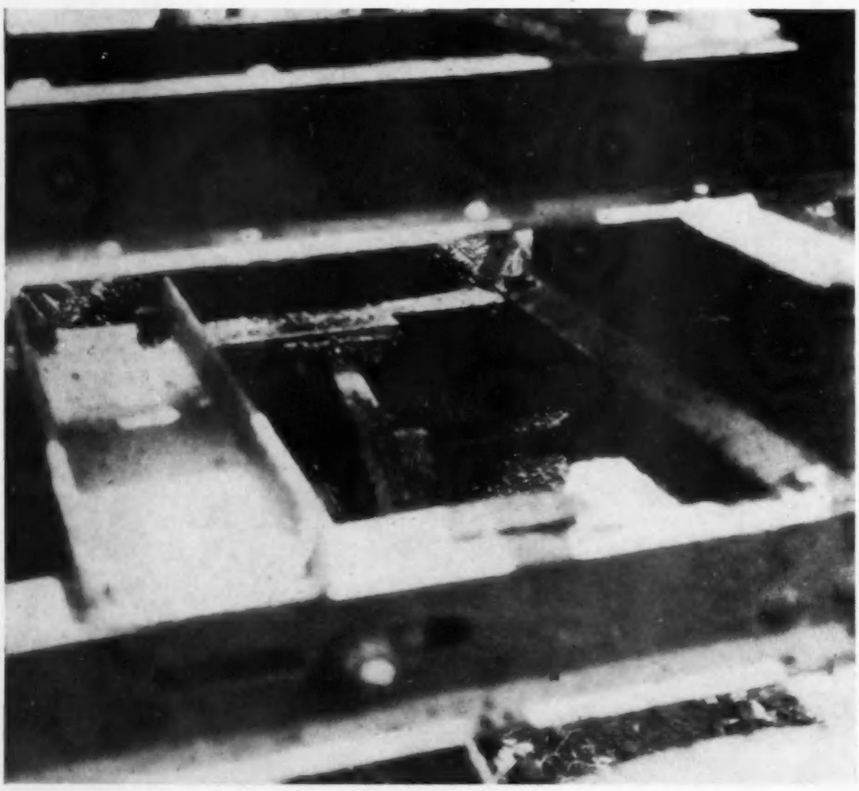
The sliding member carrying the pump is shifted by a long screw, threaded through a nut on the pump support, and with the inner end carried in a ball support on the sub-frame cross-member. A crank on the outer end permits the screw to be turned and the relative positions of sliding and fixed members changed within the limits of the slots enclosing the tightener bolts.

To transfer the unit, the tightening or clamp bolts are loosened, and the sliding member run forward enough to permit the drive chain to be removed from the sprocket and stored. On the job, the chain is replaced and the pump shifted away from the tractor with the screw until the chain has the desired tightness, after which the clamping bolts are run up snug, so as to relieve the adjusting screw of the drive tension.

The regular power take-off shaft of the tractor is equipped with a sprocket and a guard, open along the bottom portion, fitted to enclose the chain and both sprockets while the take-off shaft is being used.

The pump is a power-type reciprocating oil-field unit, mounted so that the fluid end overhangs the sliding frame member enough to provide ready access to connections for tying the suction and discharge lines to existing facilities. For jobs where it is impossible or difficult to get the unit exactly aligned with pipe lines, the unit carries a section of heavy suction hose on a special rack carried on brackets attached to the adjustable frame section, the rack being provided with U-shaped cross arms which permit coiling the hose so as to avoid kinks, and at the same time keep it clear of pump connections and out of the way of possible contact with the trailer wheels when on the road.

The trailer unit is compact, with relatively low center of gravity, and being rigidly aligned with the tractor rear axle, offers no difficulty in maneuvering when it must be backed to position. The lease provides sufficient work for the portable unit to justify its being made a part of the tractor unit, though there is nothing in the mounting or means of attachment which prevents the trailer section from being cut free by releasing the clamps on the tractor axle clamps, or by pulling the clevis pins which provide for vertical shifts when traversing rough terrain.



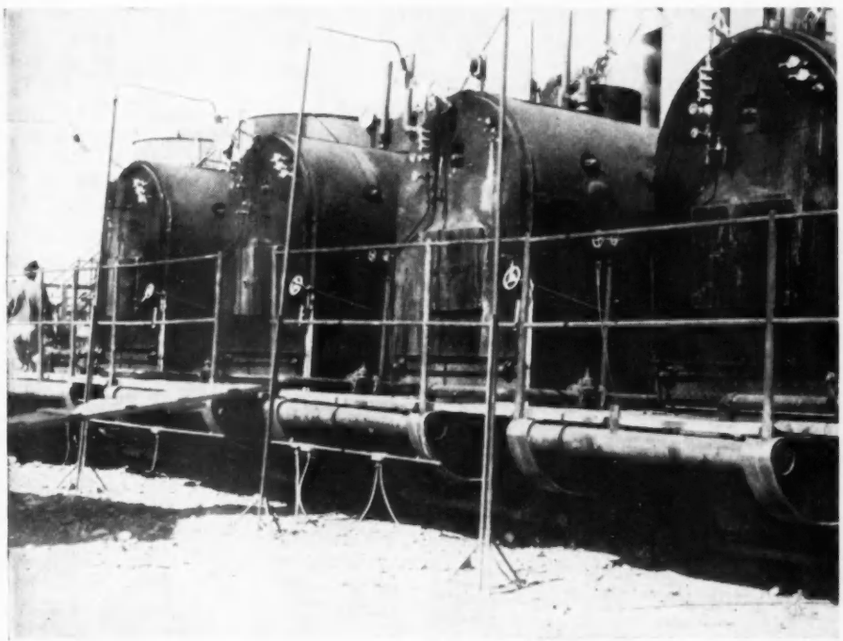
Adjustment of the chain drive is through a long threaded rod extending through a nut on the sliding member and retained on the sub-frame. A crank on the end of the rod permits quick shifts, while through locking bolts take drive strains and provide rigidity for efficient operation.

PRACTICAL OPERATING *Hints* FOR THE DRILLING RIG

$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. *LIGHTING*

Portable Supports Aid Spot Location



Three curved support sections, welded to open end of riser section, permit stringing of wires with maximum protection, while overhead arm places light at desired elevation before boiler.

SPOT illumination, such as that required on boiler fronts, is usually secured by affixing lights on brackets carried on the boilers themselves, which necessitates overhead and exposed circuits. A standard or post, made from ½ or ¾-inch pipe, may be equipped with extension arm to hold the light at the angle desired. If this standard be fitted with three short curved sections of pipe welded to the base, the unit may be easily moved, and the lower end of the main pipe left clear for threading the wiring within the pipe.

Such a fixture may be adjusted as desired in front of a boiler, and then fixed against wind or accidental overturning by driving a second piece of pipe into the ground along the standard, wiring or tying the two together.

For such a hook-up the main wiring lead for the boiler lights is brought out through a conduit, attached to the boiler skids out of the way of the crew, and separate pairs brought out through junction boxes to serve each lamp unit.

If the standard be made of short pipe, it is possible to adjust for height by changing the length of one or more nipples above the tripod.

2. *SAFETY*

Unitized Crossover Prevents Steam Burns

DRILLING rig set-ups frequently require the laying of steam and mud mains across the direct line from boilers to derrick. When the pipe is carried on blocks for ease of handling joints and to protect the contents from excessive cooling by contact with the ground, this practice introduces a hazard which frequently is the cause of serious injuries to personnel.

One company welds up a portable ladder or stile unit, which becomes a part of the regular derrick equipment. Pipe side frames, reinforced by the truss effect of the handrails, carry plates of safety-tread steel between them to form steps, the edges of the plates being used also as spacing members between the pair of pipes forming the side supporting member.

The unit may be carried on its side, laid on the pipe to be crossed, and the two legs placed on any desired footing simply by raising the handrail end to the vertical, and adjusting to the desired position to align with the walkway.

Painted white, the crossover is readily visible, even in the subdued light close to a derrick foundation, and offers a safe way over hot steam lines.

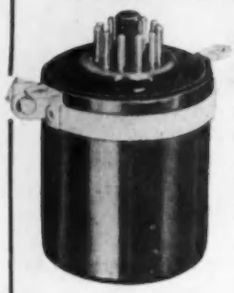
Braced by the handrail, this stair affords necessary clearance over the above-ground mains.

3. *AUXILIARY EQUIPMENT*

Portable Workbench Aids Core Testing

A LIGHT and readily transportable work bench or table can be made from scrap 1-inch pipe and timbers. The pipe is welded to form two similar frames with a slot or opening between the uprights and two upper cross members which will measure 24 inches by 2 inches. A pair of 2 x 12 planks of the desired length is slipped into the slots of the pipe members, on which the outer ends are carried outwards away

GEOPHYSICAL TRANSFORMERS



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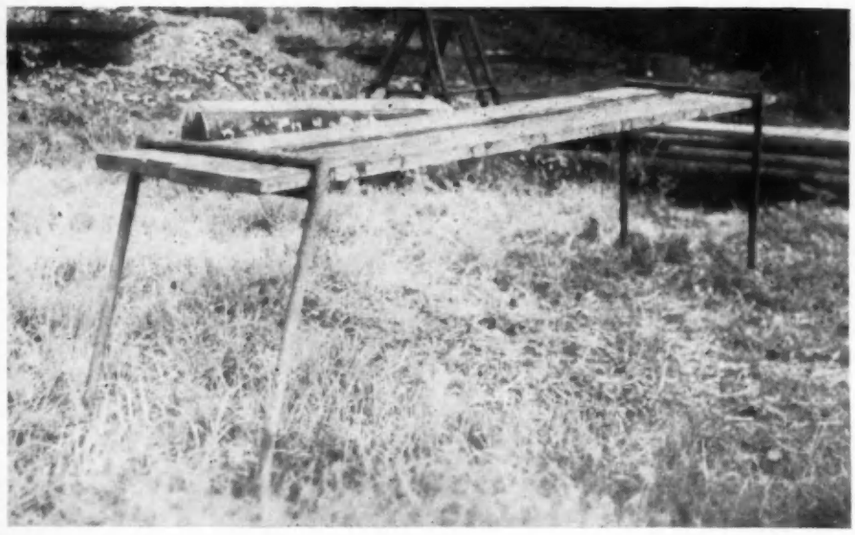

The annular spaces at the tops of the two stands accommodate 12-inch boards and tend to cramp them tightly as load is applied to the bench, yet permit quick removal when unit requires transfer.

from the boards so as to clamp the timbers firmly between the cross bars. Weight of the boards and whatever may be placed on them tends to clamp the device more tightly, insuring against slip.

The legs are made with a short outward radius bend near the base, so as to increase the spread of the pipe footings.

The table illustrated has two ½-inch strips nailed to the 2 x 12's to cover the unit between the brace members. These strips are scaled and notched in feet and tenths and are used for laying out rotary cores as removed from the core barrel. With the scale already on the table, all core measurements are readily accessible for recording while working up the core.

The bench disassembles into two flat supports and equally easily stored planks, requiring a minimum of space for transfer to new location.

4. *SPINNING LINES*

Swab Rubber Guards Roller Contact Area

WHEN it is necessary to set up a vertical shaft to prevent the spinning line from dragging against some part of the drawworks, or to insure proper alignment with the cathead, the inertia of the usual shaft is such that it does not start rotation as soon as the loaded line contacts it, but instead is abraded in one spot for an appreciable period. This not only wears the guard roll out of round but, more important by far, cuts seriously into the life and service of the spinning line.

To insure driving the roll, and also to interpose a yielding substance between roll and line, one company presses a swab rubber over the vertical shaft to cover the section normally contacted by the rubber.

So effective is the grip between line and shielding swab rubber that rotation begins much more quickly, and the line, fended off by the rubber, is not worn or rubbed along a narrow line of contact as is the case when the bare steel roller is used.

When the device is used with a spreader bar or first-turn separator to prevent piling up of the line on the cathead, the guiding effect of the swab roller collar on the shaft is very apparent and is easily noted in the smoothness with which the line enters and leaves the turns on the cathead.

Substitution of soft surface for metal affords maximum potection against chafing of line.

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

Rising Military Usage Causing Worry Over Gasoline Supply

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Rewriting P-98-B and PAO-11 In Understandable Language

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New Amendment Makes Transfer Of Material Easier

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Pipe Line Workers Are Urged To Stay On The Job

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By B. F. LINZ
Washington Correspondent

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A SUDDEN jump in Eastern gasoline consumption following the recent announcement by OPA Chief Brown of the proposed lifting of the pleasure-driving ban, last week precluded any early action to increase rations in the area although it was still hoped to permit nonessential driving September 1.

Brown disclosed that consumption was far beyond the gasoline gallonage certified by PAW, where Davies also charged pleasure driving with responsibility for shortages in various sections.

Davies also told the Midwest it was under rationing because military requirements of gasoline are stepping up rapidly, and through the remainder of this year almost one third of the gasoline produced east of the Rockies will go to war. Next year, he said, the military will take 37.6 percent of all the gasoline production in the three districts, and by 1945 will want close to 40 percent of the output.

The supply situation is due for another going over this week at the September meeting of PIWC, which is expected to receive a new evaluation of future supply and demand from its petroleum economics committee, based on the approaching completion of the over-land-transportation program and the raising of production quotas to maximum in all producing states except Texas.

Moving to make easier the redistribution of surplus oil field material, PAW last week amended P-98-c so that supply concerns could purchase and recondition used equipment before seeking to arrange for its resale. The revised order also allows the acquisition of odd lots of new and used tubular goods for the making of complete strings. Neither allotment numbers or preference ratings are required.

PAW is experimenting with something new in regulations—re-writing them in layman's English—and will shortly bring out a new version of P-98-e which, it is claimed, will be understandable by the people to whom it applies, consumers in possession of equipment.

The legal staff now is working on a similar revision of PAO-11, the spacing regulations. No changes of any consequence will be made in the spacing provisions themselves, but they will be reworded so that operators will be able to understand what the government is driving at without the necessity of acquiring a legal education.

A new directive also is in the mill dealing with foreign operations, the purpose of which is to tie up into one package the various regulations, programs, etc., which have been announced from time to time. The new directive will have no relation to the operations of Petroleum Reserves Corporation, but will more closely denfie the purposes and scope of the foreign operations committee and the regulations governing activities abroad.

A revised Directive 59, dealing with the pooling of oil in the East, is being worked on with a view to issuance before October 1, if possible. The pooling plan imposed last winter will be thoroughly revised to get out the "bugs" and meet well-based objections which have been raised to various provisions. PAW men have met with industry representatives in a number of conferences along the coast and have made a number of drafts of the proposed new regulation with a view to settling many of the complaints against the original plan voiced by various interests in the industry.

In the near future, it is expected a similar pooling of supplies will be required in District 2 and 3.

Eastern Civilian Gasoline Supply Still Serious

Jumping of the green light on pleasure driving by the general public has rendered it highly uncertain whether OPA will be able to lift the ban September 1, as anticipated.

In some areas, consumption was so far ahead of supply that filling stations began to close for lack of gasoline, and on Long Island the War Department had to step in with an order to dealers to sell gasoline to war workers only; Serious situations were reported in New Jersey and other sections of the Northeastern States which are under the pleasure-driving ban.

In Washington, Davies insisted the situation is not new, but rather a continuation of the shortage which the East has been experiencing for some time, but admitted that the problem was aggravated by an over-consumption of gasoline by the public.

No war plant has been or need be closed because its workers cannot get gasoline, he said, for PAW will act immediately in any emergency which may arise.

Officials were highly concerned over the situation, asserting that it was impossible to bring in enough gasoline to meet the demands of motorists who appear to believe that the ban on pleasure driving has already been lifted. Summer resorts in the area appear to have as much traffic as in pre-war days, and large numbers of cars are to be seen in the vicinity of amusement parks and other recreational places despite the activity of OPA agents.

Brown expressed the hope that it still might be possible to lift the pleasure-driving ban September 1, but warned that it would be weeks and might be months before the value of A coupons could be raised from the present level of 1½ gallons weekly.

Military Now Taking Third of Gasoline Produced; Used Fifth Early Part of Year

Nearly one third of all the gasoline produced in refineries east of the Rocky Mountains during the remainder of 1943 is destined for the military, it was disclosed by PAW August 27.

Summarizing the situation, Ralph K. Davies, deputy administrator, estimated that during 1944 the armed forces will require 37.6 percent of all the gasoline of all kinds produced in District 1, 2 and 3 refineries, and by 1945 will consume 39.6 percent.

In comparison with these figures, Davies said that in 1942 only 12.5 percent of the gasoline produced in the three districts went for military purposes. During the first quarter of this year, the figure was 21.4 percent and for the second quarter it had increased to 23.1 percent; for the full last half of the year military requirements will be 30.6 percent.

"These facts as to military requirements for gasoline add up to two fairly obvious conclusions," he said.

"The first is that it is going to take literally oceans of 100-octane and other highly specialized engine fuels to fight this war to a victorious conclusion.

"The second is that as military requirements increase it is inevitable that there will be less gasoline available for civilian consumption.

"It seems patent to the petroleum administration—and oil industry leaders have publicly agreed—that the only means whereby those needs can be met in full is to reduce correspondingly the demands on our gasoline stocks at home. That is the basic reason why it has been found necessary to reduce the consumption of gasoline in the Middle West and Southwest."

P-98-c Revision Permits Transfer of Materials

Revision of P-98-c to permit an operator to sell or transfer surplus materials to any supplier for resale or transfer by the latter to another operator without regard to the provisions of Priorities Regulation Nos. 1 and 13 was announced August 24 by WPB.

The amendment materially expands the field for redistribution of surplus material, permitting suppliers to acquire small lots of material which can be made up into complete strings.

PAW officials explained that the order is important in that it eliminates a previous requirement that the receiver of surplus equipment have a resale arranged.

Suppliers now may not only purchase and recondition used equipment and then seek a buyer, but also may acquire odd lots of new and used tubular goods for the making of complete strings. Neither preference ratings nor controlled materials allotment numbers are required or permitted to be used in purchasing or reselling either used or new materials acquired from petroleum operators.

However, it was said, new controlled materials acquired by suppliers from mills or equipment distributors under General Preference Order M-21-b-2, or the field stocks of oil country tubular goods which are now being established under WPB directives may be sold on the basis of allotment numbers. The newly-established field stocks of tubular goods, established to encourage wildcatting, require special allotment numbers in addition and may not be sold until these special allotment numbers, including the symbol "FS" are obtained.

The PAW materials redistribution program is now in effect and excess inventories are beginning to move freely within the industry. The new amendment to order P-98-c will permit suppliers to function more nearly like merchandisers in a free market, speed up the redistribution of any excess inventories of either new or used materials now in the hands of petroleum operators and eliminate some of the paper work now necessary.

WPB Order Clarifies PAW Material Control

Legal problems involved in the exercise by PAW of authorities granted it by WPB have been cleared up by issuance of WPB Directive No. 30, formally delegating to PAW the control of material deliveries to persons in the industry, regulation of deliveries of oil and products, control of marketing equipment and development of programs with respect to foreign movements of blending agents.

It was explained by Davies that the directive aims primarily at establishment of a uniform legal base for PAW orders dealing with questions outside the scope of the President's Executive Order 9276.

"This directive was deemed advisable because the previous delegations, which included most of these powers, were incorporated in specific orders of WPB," Davies said. "The uniform legal base established by Directive No. 30 will give PAW more legal flexibility in issuing, amending or revoking Petroleum Administrative Orders in those fields in which it derives its legal authority from WPB."

The directive makes no changes in the agreements and working arrangements previously made between PAW and WPB relative to prior clearance with WPB of Petroleum Administrative Orders.

Urge Pipe Line Workers To Stay on Their Jobs

Pipe-line workers were urged last week by the War Manpower Commission to stay on their jobs, as participants in a vital war industry.

Moving to counteract an apparent belief among many transportation workers that they should transfer to some other occupation in order to protect their selective service status, Otto S. Beyer, ODT director of transport personnel and a member of WMC, explained that the new list of critical occupations issued by Chairman McNutt August 14 did not displace the previous lists of essential activities, in which pipe-line and other transportation was included.

"All activities and occupations listed in these (previous) bulletins are still designated as essential," Beyer declared. "The new list of critical occupations does not alter this essential list in any way, and all officers of the Selective Service System and WMC have received specific instructions to that effect.

"Transportation workers should therefore stay where they are. They will not improve their status in any way by transferring, providing they are now using their highest skills.

"Transportation is a vital war industry, and transportation needs workers. If you are a transportation worker, and if you are working at your highest skill, do not transfer. Stay on your essential job!"

OPA May Forestall Action By Congress on Crude Prices

The opening shots in a campaign by left-wingers in OPA to forestall direct action by Congress on the oil problem when it reassembles next month, are seen by Charles P. McGaha, president of the National Stripper Well Association, in the recent statement by OPA Labor Policy Committee.

This group's action in charging that demands for a crude-price increase involves a steal from the public purse of more than a billion dollars is a serious blow to the war effort, says McGaha, and ought to be the subject of a "searching investigation by Congress in order that the public may be fully informed of the sinister purpose behind such smear attacks."

The charges have an extraordinarily sinister aspect, in the opinion of McGaha, since they were made "at a time when the nation's oil production is a quarter of a million barrels per day below the estimated requirements for military and essential civilian purposes—at a time when refineries are being closed down because of inability to obtain crude oil—at a time when the discovery rate of oil is but one seventh of what it was only six years ago—at a time when thousands of stripper wells are being abandoned as their owners find it more profitable to take jobs in war plants—at a time when we are annually withdrawing more than 50,000,000 barrels of oil from storage in order to meet the nation's military demands and thus reducing our above-ground inventory of the nation's most precious resource to the vanishing point—at a time when we are drilling less than one half as many wells as were drilled in 1940—at a time when gasoline for essential uses is not available in many parts of the United States, and at a time when literally thousands of independent operators who constitute the backbone of the oil industry are being crucified upon a cross of OPA irresponsibility and incompetence."

WPB Division Set Up To Aid Oil Equipment

Establishment of a new supplies section to work with PAW in speeding up the flow of material to petroleum equipment distributors was announced August 23 by WPB, completing a set-up drafted by the oil agency early this month (The Oil Weekly, Aug. 16).

The new section will seek to facilitate the procurement of supplies needed in the oil production expansion program, will be a focal point for all problems of distribution affecting petroleum supply distributors, and will process all WPB-547 applications (formerly PD-1X) for priority assistance in the supply field, it was stated.

Myron C. Schoenly, formerly WPB distribution officer assigned to PAW, has been appointed chief of the new section, and in the near future will set up an industry advisory committee representing the equipment distributors to consult with the board on problems of the industry.

A petroleum equipment manufacturers and suppliers service section has been established in the materials division of PAW under Alvin Zwerdeman, formerly vice president of Axelson Manufacturing Company of Los Angeles.

The two groups will cooperate in assisting the approximately 350 oil field supply companies to secure the materials required by operators in the field, with the PAW division scouting the bad spots and the WPB section acting to increase the flow of scarce materials thus uncovered.

CIO Accuses Ickes Of Inconsistency

Charging inconsistency between his actions as Secretary of the Interior and as Petroleum Administrator, the CIO cost-of-living committee last week called on Ickes to abandon his efforts to secure a higher price for crude oil.

The committee, following the line of the OPA labor policy committee that the proposal for an increase was a "big steal," asserted that last year, as Interior secretary, Ickes blocked a move by the companies for a drastic lowering of royalty charges on public lands production.

The basis for that attempt, it was declared, was the same incentive for discovery of new oil which is given as the reason for seeking a higher crude price, but Ickes opposed the move so successfully that the legislation finally enacted by Congress provided lower royalties only for new discoveries.

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Patent Licenses, unrestricted as to sources of supply of materials, but on royalty bases, will be granted to responsible oil companies and operators to practice the inventions of any and/or all of United States Patents Nos. 1,807,082; 1,991,637; 2,041,086; 2,044,758; 2,064,936; 2,094,316; 2,119,829; 2,214,366; 2,294,877; 2,304,256 and further improvements thereof. Applications for Licenses should be made to Los Angeles office.

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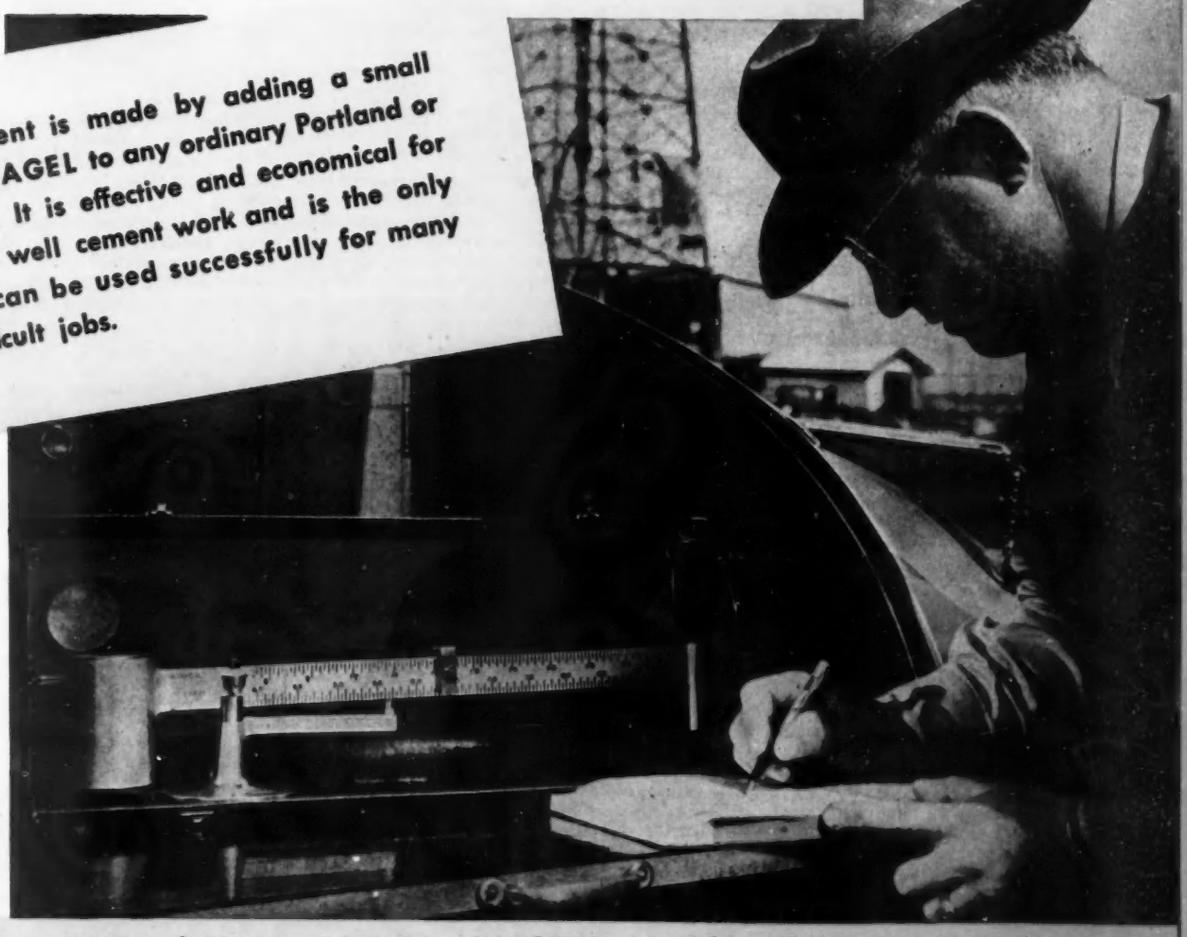

Baroid Service Engineer Weighing Slurry at the Well with Baroid Mud Balance.

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Illinois Critic of PAW Answered by Davies

Charges by State Senator Earl B. Searcy of Illinois that PAW had restricted crude production in his state were answered August 25 by Deputy Administrator Ralph K. Davies, who pointed out that there never has been any control, federal or state, of Illinois output.

Far from restricting the state's contribution to the war oil barrel, Davies said, Illinois never has been able to produce as much as was requested of it.

Furthermore, he added, the production rates established for the states by PAW have only "the force of persuasion" and not of law.

"The belief that PAW restricts well production stems undoubtedly from the fact that we certify to the oil-producing states the quantity of oil which should be produced from each sate during each month," Davies commented. "Immediately after the outbreak of the war the discontinuance of tanker shipments from the Gulf to the East Coast because of sinkings and need for tankers elsewhere made it necessary that the production from the oil-producing states be coordinated so as to make the most effective use of available pipe-line and overland transportation facilities."

Had Illinois set up a conservation body with authority to enforce its rulings, he pointed out, "that state would be producing much more oil today and would have produced a lot more during the period of the war."

Searcy charged that PAW has placed a 20-barrel limit on wells capable of producing 150 barrels a day. "The fact is," Davies retorted, "that recently oil operators and state officials have complained to us that the rates for their states were too high.

"The only restrictions being placed on oil production today are imposed either by the state authorities, for the purpose of conservation, or by the lack of transportation facilities," he explained. "Where more than one state must share in the limited available transportation facilities, PAW does recommend how the sharing should be done. To this extent and to this extent only does PAW participate in the control of production. Except in limited areas in the Southwest where sufficient transportation is not available, every oil field in the United States is producing at or substantially at maximum efficient capacity.

"Another complaint which we frequently receive is that PAW is holding down production by restricting drilling," Davies added. "The fact is that there are no restrictions of any kind upon exploratory, or wildcat drilling. The drilling for non-exploratory, or development, has been restricted automatically because of the shortage of steel and other critical materials. All that PAW has done is to require that the materials available be used most efficiently so that the greatest return in sustained oil production is realized out of expenditures of the limited and deficient quantities of critical materials available for oil development and production.

"During 1942 and the first half of 1943, steel was needed for war plants and there was very little allocated for drilling oil wells. If it had not been for the standard placed on oil well drilling immediately after Pearl Harbor the industry's inventory of oil well casing would have been used during the first few months of 1942 in drilling closely spaced wells. The requirement that the wells be properly spaced resulted in the development of a larger drainage area with each well drilled, thus making available the maximum sustained productive capacity out of the materials on hand and available for necessary additional drilling. In fact, we have more oil supply today because of the restrictions than we would have had without them."

Restrictions on River Oil Barges Eliminated

Repeal of Petroleum Administrative Order No. 11, regulating barge movements on the Mississippi and Ohio Rivers last winter to funnel gasoline to the East Coast, has been announced by PAW.

Officials explained that with the improvement in transportation facilities it is no longer necessary to restrict barge movements to heating oils and products other than motor fuel.

Office of Economic War Reveals Interest in Oil

The Office of Economic Warfare was disclosed last week to have an interest in petroleum as part of its policy of controlling export and import trade so as to further our war effort and harass the enemy.

The OEW policy was put into words for the first time at a meeting of the War Mobilization Committee July 29, when a resolution on policy was adopted providing, among other things, for the performance of technical services and operations necessary to the work of the agency abroad in the field of petroleum.

The policy resolution provides that commercial exports are to be so controlled as to prevent any materials, commodities or technical data reaching the enemy, conservate materials and supplies required for our own war production and civilian economy, supply the United Nations with needed materials for both warfare and their civilian economy, and supply neutral countries with civilian necessities with a view to obtaining from them concessions helpful to our war program and detrimental to that of the enemy, and "to maintain and strengthen private trade channels and protect the trade position of the United States."

Control of imports is to be directed to the procurement of supplies needed for war production and the civilian economy, the acquision of vital goods in neutral countries which might otherwise find their way to the enemy, and the development here of stockpiles of strategic materials.

In addition, OEW is to assist in maintaining the tightening the blockade of Europe, injure the enemy and aid the United Nations by means of trade controls designed to secure maximum supplies and to restrict the flow of materials to the enemy, root out of Latin America Axis or other economic interests inimical to the United States, work with other interested agencies in the handling of economic problems in reoccupied or liberated areas, and assist the armed services in estimating enemy economic war capabilities, analyzing bombing objectives in terms of industrial importance and susceptibility to damage, assessing economic damage caused by bombing of specific targets and relating such damage to the total enemy productive capacity, and meeting the problems of overseas supply.

Furnace Conversion Requirements Lifted

No heating plants, home or commercial, will be required to convert from oil to other fuel unless their annual consumption is 10,000 gallons or more a year, it has been announced by PAW.

Decision to abandon the conversion campaign among such consumers was reached by PAW after study of the coal situation, which promises to be less favorable, as a result of last spring's strikes, than when the program was originally adopted.

Less than half of the 33 states affected by the fuel-oil rationing will be involved in the change of program, OPA last May having removed the conversion requirements for New England, North and South Dakota, Kansas, Nebraska, Missouri, Georgia, Florida and the Pacific Northwest.

All Tank Cars Must Carry Capacity Load

Misunderstanding in the industry as to the permit requirements for the short-loading of tank cars were cleared up by ODT August 25 with an order amending a special directive effective last month.

Under that directive, special permits were required for the movement of tank cars not loaded to one of four specific capacity loading standards. It was found, however, that shipments authorized under other ODT permits have continued, largely as a result of a mistaken belief that a permit for a haul of less than 200 miles, for instance, also covered a short-loaded car.

Accordingly, an amendment, effective September 1, has been issued which prohibits the movement of tank cars not loaded to capacity unless they are covered by a general or special permit specifically authorizing a departure from the loading requirements.

Consumers Permitted To Store Fuel Oil

In a move designed to protect public utilities and war plants from interruptions of operations due to inability to secure fuel oil next winter, OPA has amended its rationing regulations permitting such concerns to lay in reserves adequate to carry them for a period of three months or more.

The storage stocks will be solely for emergency use in the event of disruption of transportation and will not represent any addition to the regular allotments of oil granted under the rationing procedure.

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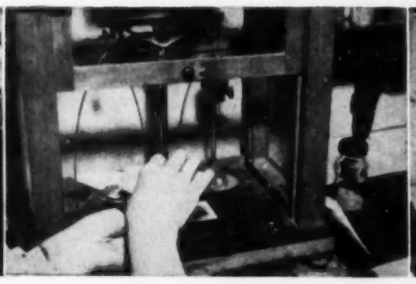

In a similar manner the steel is analyzed to determine all other necessary elements, some of which are illustrated below.

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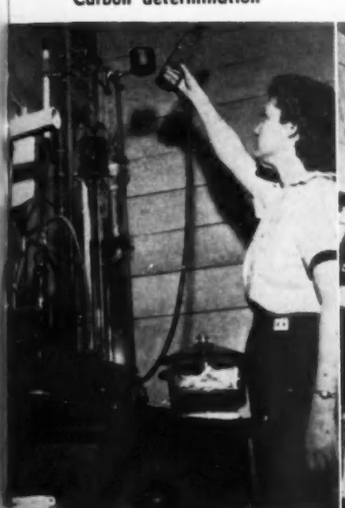
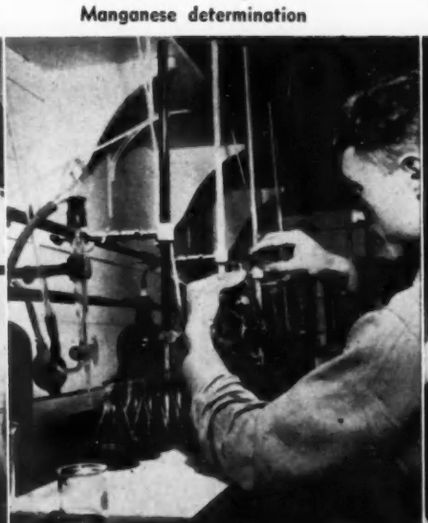
Carbon determination



Manganese determination



Silicon determination

Sulphur determination

TESCO

BETTER STEEL FOR MODERN INDUSTRY

Standard of New Jersey Says Only Higher Crude Prices Can Assure Adequate Supply

A higher ceiling price for crude oil as a means of assuring our country "adequate supplies of oil, however long the war may last," is advocated by Standard Oil Company (N. J.) in an editorial which will appear in the forthcoming issue of the company publication, *Lamp*.

Stating its belief that the recommendation of Harold L. Ickes, Petroleum Administrator for War, for a higher ceiling on crude is sound, the company points out that one of its directors two years ago called attention to the need for higher prices to stimulate exploration.

The company compared some oil producers with a store-keeper who was selling his merchandise at a profit on its cost to him but not at high enough prices to replace his inventory. "The small producer is being forced to liquidate his business," it was said.

The company declared the situation cannot be met, as has been suggested, by imports of oil, and added that it could not advocate that the nation should depend in time of war on imports of a "veritable sinew of war."

Text of the editorial follows:

On April 7, 1943, the Petroleum Administrator for War recommended to the director of the Office of Price Administration an increase of 35 cents per barrel in the price of crude oil. In due time OPA rejected the recommendation. Subsequently the recommendation was repeated by PAW and again rejected by OPA.

Standard Oil Company (New Jersey) believes the recommendation by Petroleum Administrator Ickes is sound. Our views are clearly summarized in a statement published by a member of our board in July, 1941:

"To serve their primary function of balancing supply with demand, crude oil prices must not only return full costs plus a reasonable profit to the efficient producer; they must also offer an additional reward to stimulate exploration sufficiently to maintain adequate reserves. High prices increase the volume and efficiency of exploration; low prices stifle exploration. Over the last decade average prices for crude oil have been much lower than for the preceding ten years and lower even than the average over the life of the industry. Under these circumstances no one should be surprised to learn that over this same recent period discovery of new oil fields has also lagged and fallen below its average level for the previous decade. Crude oil prices have been too low to support the required activity in wildcatting.

"Crude oil prices have increased over recent years but the increase has been moderate and a further increase is required if oil-finding activity is to be stimulated. The lag in the response of wildcatting to price increase should be borne in mind. The high average prices . . . for the early 1920's had their effect only in the late 1920's. If it is desired to increase discoveries in the years 1943 to 1945 the price stimulus ought to be applied now. If no action is taken until more oil is needed, scarcity may ensue before the action has become effective."

Today our nation has reached the point anticipated in the foregoing quotation where "more oil is needed"; and still there has been no significant increase in crude oil prices.

In opposition to Mr. Ickes' recommendation it has been asserted that no "extra incentives are needed to stimulate production." In support of this view it is declared that "profits of most oil-producing companies are the highest in years." If this statement were true it would still be beside the point. The point is that the small oil producer is being forced to liquidate his business. He is like the country merchant who is obliged to sell all the goods on his shelves at prices lower than the cost of replacing them. It may be that he receives for his merchandise more than he paid for it five or ten years ago, but he does not receive enough to cover today's cost of putting back on his shelf the articles he has just sold. His current sales may show a bookkeeping "profit" but the disquieting fact remains that he is being forced to abandon his enterprise. Tomorrow the community he has served will find his windows boarded up and store closed.

It is naively suggested that all our troubles will vanish if we simply "import more oil from South American countries." This suggestion ignores one sinister fact; the submarine. We are a nation at war. Our very life depends on oil; oil here on the home front as well as on the battle front. We all know that the flow of imported oil can be paralyzed over night; it has been paralyzed for months on end within the last year. Our company owns extensive oil-producing properties in South America and for many years we have brought into this country substantial imports of oil from South America. We believe this policy on our part serves the best interests of our own country as well as of our neighbors in South America. But we would never advocate that our country, in time of war, should depend on imports over enemy-infested waters for oil, a veritable "sinew of war."

Mr. Ickes' critics charge that the increase he recommends would open wider "the gates of inflation." This charge is debatable but to refute it is hardly pertinent; again the argument is beside the point. We are at war and certain aspects of war are by their very nature inflationary. Germany has learned that oil, for example, is indispensable to war, whatever the cost. Our country also must continue to possess adequate supplies of oil, however long the war may last; and this oil able here at home even if costs increase.

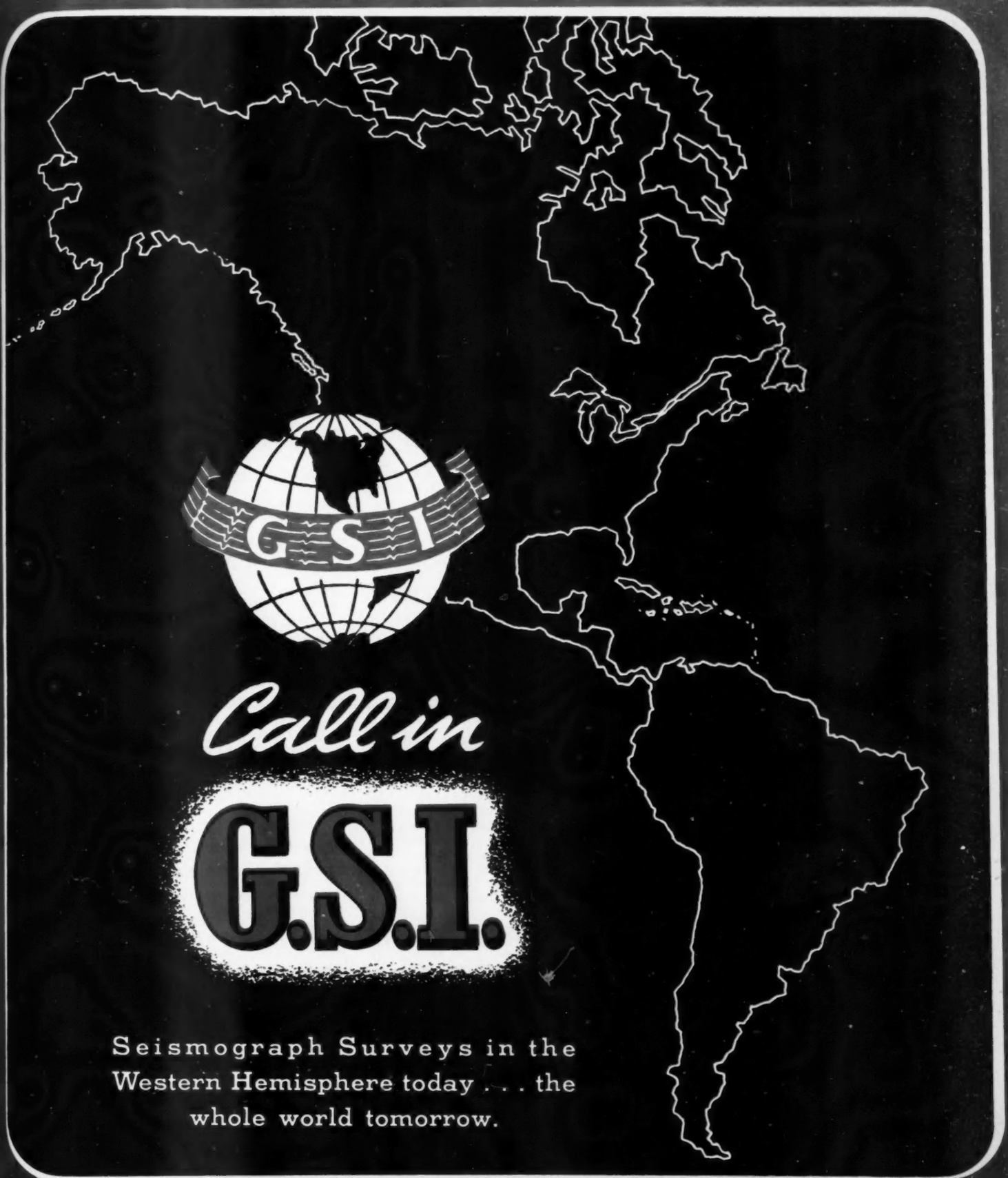
Finally Mr. Ickes' critics offer some medicine of their own to cure our sick oil-finding industry. They would have Uncle Sam pay a subsidy in the form of a premium price for oil produced from new wells; and they would supplement this lure with government loans to cover part of the cost of drilling new wells. Government loans and subsidies are the devices of a regimented economy; they are not the way of democracy. Moreover every experienced oil man knows that the proposed treatment will not cure our trouble. Similar rewards have been tried repeatedly, and repeatedly they have failed. The very suggestions reveal that the proponents just do not understand what makes our oil-producing industry tick.

In the past the United States has produced more than 60 percent of the world's crude oil. This is the joint achievement of many thousands of operators, large and small, whose vigorous search for oil has been sustained over two generations. The distinguishing feature of American oil-finding is the amazing number of wells we drill. Every "wildcatter" believes that oil exists beneath his location. He drills a well to test his theory however wild the rest of us may consider it to be. His wells are often "dry holes" but from even the driest hole, the most dismal failure, he brings up riches of information to add to our common store of knowledge on the whereabouts of oil in the earth. Drawing on this common store of knowledge, all of us are able to make each of our subsequent test wells a more intelligent research venture. From the million or so wells we have drilled in this restless, pioneering search for oil we have learned more about the character of our share of the earth's crust than any other nation knows of its share. In the vertical dimension we have recognized a new frontier, deep in the earth beneath us; and we have set about to explore and conquer this new frontier with all the ingenuity and daring our forefathers brought to bear on the conquest of our geographical frontiers a century ago. Every nation has this same frontier but no other nation has ever really explored it. Yet again our pioneering effort has brought us rich reward—more crude oil than all the rest of the world has produced and, in consequence, a standard of living higher than that of any other nation.

Our method of finding oil fails, however, unless we have always on the job a multitude of independent wildcatters. In no other way can we maintain the activity of drilling the thousands of wells we require every year to guide our search intelligently. But we are not maintaining our multitude of wildcatters. As time goes on we drill fewer and fewer wells. Twenty years ago both the five-year total and the one-year total of wells drilled in search for oil was larger than it is now.

The fundamental factor in stimulating exploration has always been a crude oil price high enough to convince the small producer that it will be profitable to do a little exploring for new oil fields. It does not always suffice to pay him a reasonable profit on his current production; that production may have cost him less than he thinks he must spend to find new supplies. He must be confident that the price he is to receive will exceed the costs of the new supplies he hopes to find. Crude oil prices are too low today to inspire that confidence. If 1926 be taken as the year of parity prices, then crude oil prices are far below parity. Yet oil-finding costs mount higher and higher. Drilling costs are inflated; more dry holes are drilled for each barrel of oil found; and the average test well must go deeper each succeeding year. Well may the small operator fear that he cannot find new oil to replace the oil he is marketing today except at a cost that current prices do not permit him to contemplate.

The narrowing margin between costs and prices pinches the small operator before it is felt by the large operator whose reserves are often more ample. We are deliberately sacrificing the most precious heritage the experience of the American oil industry has bequeathed to us, the small oil producer; but if we look more closely we shall discover that we are all in the same boat with him. Under the American system the industry that fails to support its small operators is on its way out.



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Must Find New Fields or Reduce Civilian Consumption, Says Wiess

Harry C. Wiess, president of Humble Oil & Refining Company, the largest oil producing company in the United States, in an article, "Crisis in Crude Oil?" appearing in the September issue of *Mining and Metallurgy*, monthly magazine of the American Institute of Mining and Metallurgical Engineers, says that the United States is using at home and exporting for war purposes more oil than ever before—more than 4,150,000 barrels per day—and that unless we can find new sources of supply or import greater amounts of crude from abroad we must face a further cut in civilian consumption.

In concluding his analysis, Wiess points out that we have about reached the peak of our efficiency in production, and that peak is about 250,000 barrels per day short of the estimated daily need in 1944.

To solve the problem he suggests we can meet the demand even at the risk of hurt to our reserves an alternative which he hastens to point out is least desirable. Or, we can restrict civilian demands to the minimum, do more to encourage discovery of new fields, or increase imports.

In encouraging discovery of new fields he indicates that the best way to do this is either to increase the price of crude oil, or reduce taxes. If these suggestions seem too inflationary he suggests that increasing importations or restriction of civilian supplies are the only answers. "The alternatives are clear," he declares, "and a decision must be made as a matter of national policy."

"Facts which must be considered in an analysis of the crude-oil situation," says Wiess, "relate to the demand, the available supplies from existing reserves, and the level of reserves which the nation should maintain from the standpoint of national welfare and security. Beyond question, a nation with twenty billion barrels of proved reserves could satisfy even the large wants encountered during wartime were it willing to dissipate its resources rapidly and at the expense of conservation. But such a course might well lead to undesirable dependence upon foreign supplies of petroleum and for that reason the nation must give particular consideration to its policy of meeting wartime petroleum demands."

Wiess points out that the Economic Division of the Petroleum Industry War Council estimates that the requirements of oil in 1944 may average over 4,400,000 barrels daily which will mean an increase of 525,000 barrels daily over 1941. "This increase," he says, "is within 20 percent of the total production in South America and is two or three times the production of Europe outside Russia."

The three major factors that have affected crude-oil requirements in the United States, according to Wiess are: greater military demands; a sharp reduction in civilian use of gasoline and fuel oil; and loss of large foreign imports.

Wiess points out that the cut in motor gasoline consumption by passenger cars has been about 40 to 50 percent from prewar levels and the total decrease in civilian motor gasoline consumption since rationing began has been something like 500,000 barrels daily. In addition to this amount, he shows that the conversion from oil to coal has saved another 180,000 barrels daily.

"Motorists may well ask," he says, "why further rationing should be discussed if passenger cars are currently using some 500,000 barrels daily less gasoline than before the war, while the nation has increased its production of crude oil. The answer is to be found in the drastic changes that have occurred in refinery operations in order to supply aviation gasoline, materials for the synthetic rubber program, and other war products.

"So the answer to the motorists's question is that his gasoline has gone to war as such or in other products. The most forceful illustrations of this are evident in the operations of individual refineries. One refinery in the Texas Gulf Coast which processes 30,000 barrels daily of crude and normally made about 12,000 barrels of motor gasoline will reach the point shortly where it makes no motor gasoline at all, because it is making aviation gasoline and butadiene."

In discussing the import situation, Wiess states that from 1936 to 1939 we imported about 155,000 barrels daily, and during the period 1940-41 about 240,000 barrels. No figures are now available as to imports, but he estimates that the daily loss in imports is about 200,000 barrels daily, indicating that not more than 25,000 to 40,000 barrels are getting through.

"Anyone analyzing the crude-oil situation," says Wiess, "may wonder why we should be concerned about producing 4,400,000 barrels daily or 1,600,000,000 barrels per year, when our current proved reserves are approximately twenty billion barrels. Should we not be able to produce at least 10 to 20 per cent of our reserves a year for the duration of this war? Is not the potential producing capacity of such a field as East Texas alone as much or more than the entire current production in the United States?"

In answering these questions Wiess points out that an underground oil reserve is not like a storage tank. "If the oil is withdrawn too rapidly in a field," he explains, "the pressure declines, the loss of dissolved gas reduces the movement of the oil through the sand or other formation, oil is lost by the rapid and uneven encroachment of water and the total amount of oil that can be recovered is materially decreased."

Wiess says that current estimates of the amount that the United States can produce efficiently range from 4,000,000 to 4,270,000 barrels of oil per day or between 7 and 8 percent of the estimated proved reserves on January 1, 1943.

PIPE LINE REVIEW

Magnolia Increasing Line Capacity in West Texas

Enlargement of facilities for handling oil crude from the north portion of the West Texas district has been authorized by Magnolia Petroleum Company, subject to PAW approval. Plans call for installation of a 22-mile 8-inch loop between Andrews Station, Andrews County and Midland. This proposed loop will parallel an 8-inch line that is handling 18,000 barrels daily from the Slaughter field and is the only outlet for the Seminole and Fullerton fields. Rated capacity into Midland is 27,000 barrels and the loop will boost the Andrews-Midland sector to 41,000 barrels daily. Pipe is available for the project which can be completed within 30 days after approval.

Entry of Magnolia Pipe Line Company into the Apco-Warner field, Pecos County, with a 12-mile 4-inch pressure line and 6-mile gravity gathering system has been approved by PAW. Permian Basin Construction Company, Odessa, has contract for laying the system which is to be in service within 45 days.

Oklahoma Pipe Line Co. Building Line in Kentucky

Oklahoma Pipe Line Company has started construction of 15 miles of 2-inch and a 3-inch lateral system in Union and Henderson Counties, Kentucky. Production in Hitesville, Cario and Robards fields, owned principally by Carter Oil Company, will be pumped from the central gathering point through the 2-inch to a point near Robards where the oil will be delivered to Owensboro-Ashland Pipe Line Company. Two 3,000 barrel storage tanks will be erected.

Pipe Line Tax in July Exceeds Year Ago

Revenue from the federal taxes on oil in July was sharply above that of June, and in the case of lubricating oil and pipe-line transportation exceeded that of July, 1942, it was announced by the Internal Revenue Bureau August 20.

Gasoline-tax collections of $26,365,208 for the month, while nearly $9,000,000 above the $17,775,567 recorded for June, were more than $4,000,000 under the July, 1942, total of $30,444,751 and for the first 7 months showed a loss of $52,000,000 from the corresponding period last year, aggregating $146,044,839 against $198,023,200, the bureau reported.

Receipts of $4,294,413 from the lubricating-oil tax were more than $1,500,000 above June's $2,661,751 and over $1,000,000 above the $3,018,014 collected in July of last year, bringing the seven-month total some $3,400,000 above 1942 at $27,974,306 against $24,529,041.

Pipe-line transportation returned $1,202,502 in July against $745,586 in the preceding month and $1,195,774 in the corresponding month last year, but for 7 months showed a slight loss, $7,657,719 against $7,899,612, it was shown.

Record Refinery Runs for Year Result in Additions to Stocks of Major Products

Statistics of the industry for the week ended August 21 were generally favorable, as refinery runs were increased to a new high for this year, with the result that there were additions to the stocks of both light and heavy fuel oils as well as gasoline.

There was also some improvement in the storage situation in the East Coast district, supplies for civilian use having been increased.

Crude runs to stills increased to 4,046,000 barrels per day, up 42,000 from the previous week, and within 74,000 of the all-time peak runs of October, 1941. The refinery runs of the week were 315,000 barrels, or 8.4 percent above those of 3,731,000 in the week of August 22 last year. There were increases in runs to stills over the previous week in all districts except Oklahoma-Kansas and California. Refineries of the East Coast and the Southwest districts, in processing 2,000,000 barrels daily, were using 82 percent of their rated capacity. Corresponding figures for other districts were as follows: Appalachian District 1, 111,000 barrels daily, or 85 percent of capacity; Appalachian District 2, 58,000 barrels, or 123 percent; Indiana-Illinois, 746,000 barrels, or 90 percent; Oklahoma-Kansas, 324,000 barrels, or 78 percent; Rocky Mountain District 3, 8000 barrels, or 100 percent; Rocky Mountain District 4, 96,000 barrels, or 69 percent; California, 703,000 barrels, or 86 percent.

Stocks of residual fuel oils were increased 276,000 barrels, to a total of 66,724,000 barrels. The latter figure was about 11 million barrels, or 14 percent, less than the 78,098,000 barrels on hand August 22 last year. The additions to stocks was in about the same amount as the 253,000-barrel increase in production over the previous week. At 8,411,000 barrels, production of heavy fuel during the week was 1,536,000 barrels, or 22 percent, greater than the 6,875,000 barrels produced in the corresponding week last year. The increase in residual fuel stocks occurred in spite of withdrawal of 645,000 barrels in California. The East Coast and Southwest districts added 727,000 barrels, and there were smaller additions in all other districts outside California. Production of heavy fuel was up for the week in practically all districts.

Addition of 890,000 barrels of gas oil and distillate fuel to storage was a satisfactory development. This accumulation was about normal, and contrasted with a comparatively small addition in the previous week. However, the 37,464,000 barrels on hand August 21 was about 3½ million barrels, or 8 percent less than the 40,899,000 barrels held a year previously. The addition to storage occurred in spite of the fact that pro-

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED August 28	August 21
Arkansas	76,300	76,350
California	792,100	786,450
Long Beach	30,600	32,850
Midway-Sunset	55,700	57,100
Kettleman Hills	42,150	41,250
Wilmington	93,300	94,200
Rest of State	570,350	561,050
Colorado	7,000	7,350
Illinois	212,450	206,300
Salem	29,500	27,800
Louden	37,400	33,450
Other New Pools	134,450	134,250
Old Pools	11,100	10,800
Indiana	13,400	13,000
Kansas	297,600	308,100
Kentucky	23,400	23,050
Louisiana	352,150	352,500
North	83,450	83,700
South	268,700	268,800
Michigan	53,100	61,160
Mississippi	52,400	50,400
Missouri	95	95
Montana	22,050	21,200
Nebraska	1,900	1,950
New Mexico	105,100	105,150
New York	14,100	14,150
Ohio	9,000	8,950
Oklahoma	326,200	329,250
Oklahoma City	55,200	55,100
Seminole Area	72,700	73,850
Rest of State	198,300	200,300
Pennsylvania	42,800	44,900
Tennessee	30	30
Texas	1,712,800	1,712,600
Upper Gulf Coast	474,650	474,600
East Texas Field	371,150	371,150
Rest of Eastern Texas	130,150	130,200
Lower Gulf Coast	150,400	150,400
Southwest Texas	72,050	71,950
South Central Texas	17,000	16,950
West Texas	258,400	258,550
North Texas	140,700	140,600
Panhandle	98,300	98,200
Utah	10	10
West Virginia	9,500	8,600
Wyoming	102,100	101,050
Total United States	4,225,585	4,232,595

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Week Ended	Runs to Stills Barrels Daily	Week Ended	Crude Stocks Barrels	Week Ended	Gasoline Stocks Barrels	Week Ended	Gas Oil & Distillate Stocks Barrels	Week Ended	Residual Fuel Oil Stocks Barrels	Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	[1]4,337	11-22	[1]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[1]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	49,861	11-14	95,857	1- 3
1943	4,239	8-14	4,046	8-21	245,752	5-29	94,159	3-20	42,913	1- 2	72,881	1- 2
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	72,505	8-14	30,732	4- 3	66,448	8-14

TRENDS OF 1942 AND 1943

Trends in Week Ended:	Crude Oil Production Daily	Runs to Stills Daily	Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gas Oil & Distillate Production Weekly	Gas Oil & Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,285
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	3,549	32,851	6,615	77,304
July 25	3,691	3,658	249,262	10,864	82,281	3,647	35,966	6,796	77,816
August 29	3,964	3,697	249,007	11,300	80,831	.....	42,060	.....	78,034
September 26	3,909	3,802	242,785	10,954	80,550	.....	45,945	.....	78,943
October 31	3,901	3,731	239,266	11,153	79,159	.....	48,131	.....	79,166
November 28	3,878	3,736	[3]84,850	11,269	78,854	.....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,057	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	4,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 26	3,955	4,015	242,657	11,092	79,589	3,876	34,044	8,126	67,960
July 31	4,133	3,788	238,420	11,127	74,977	3,765	36,363	8,478	66,877
August 7	4,203	3,776	237,382	10,791	73,368	3,677	36,344	7,850	66,714
August 14	4,239	4,004	236,520	11,672	72,505	4,147	36,574	8,158	66,448
August 21, 1943	4,218	4,046	.....	12,134	72,815	4,137	37,464	8,411	66,724
August 22, 1942	3,972	3,731	[4]246,433	11,214	79,125	3,850	40,899	6,875	78,098
Change:									
In week	—21	+42	—862	+462	+310	—10	+890	+253	+276
In year	+246	+315	—9,913	+920	—6,310	+287	—3,435	+1,536	—11,374
In year	+6.1%	+8.4%	—4.0%	+8.2%	—7.9%	+7.4%	—8.3%	+22.3%	—14.5%

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [4] Stocks, August 15, 1942.

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YOUR WAR BONDS ARE HELPING HASTEN VICTORY

duction for the week was 10,000 barrels less than in the previous week. In totalling 4,137,000 barrels, the week's production was 287,000 barrels, or 7.4 percent, greater than 3,850,000 barrels in the like week last year. The additions to storage included 621,000 barrels in the East Coast and Southwest districts, 168,000 in California, and smaller amounts in Appalachian, District 1, Oklahoma-Kansas and Rocky Mountain, District 4. There were small withdrawals in Appalachian 2 and Indiana-Illinois. Production of gas oil and distillate fuel was up in the Appalachian, Oklahoma-Kansas, Rocky Mountain and California districts, while there were decreases in the East Coast-Southwest and the Middle West.

Stocks of gasoline increased 310,000 barrels to 72,815,000 barrels. The latter figure was about 6,000,000 barrels or 8 percent, under the 79,125 barrels held on August 22 last year. This addition to storage was possible because of the production of 462,000 barrels more gasoline than in the previous week. The refinery output totalled 12,134,000 barrels for the week. This exceeded production in the corresponding week last year by 920,000 barrels, or 8 percent. The East Coast-Southwest added 676,000 barrels of gasoline to storage, and smaller amounts were added in the Appalachian and Upper Mid-Continent districts, while there was a withdrawal of 389,000 barrels in the Middle West and nominal decreases in the Rocky Mountain and California districts. Production rates for gasoline were higher than in the previous week in all districts except Oklahoma-Kansas, refineries having stepped up output in response to sharply increased demand lately.

Crude-oil production in the United States averaged 4,218,000 barrels per day in the week ended August 21, down 21,000 barrels from the previous week and 246,000 barrels, or 6 percent above the 3,972,000 barrels per day produced in the week of August 22 last year. Despite the small decline in production, the output was comparatively high, the previous week's rate of 4,239,000 barrels having represented a new high for this year. The August 21 week's production rate was within about 120,000 barrels of the all-time record production.

Crude-oil stocks were further reduced 862,000 barrels in the week of August 16, having declined to 236,520,000 barrels. The crude storage now is about 10 million barrels, or 4 percent, lower than at this time last year.

Supplies of Oils Short In All Parts of Nation

Markets continue generally tight in all districts, with refiners' quotations on most products at or close to the ceilings. Increasingly, the scarcity of crude oil is causing refiners difficulty in supplying their customers with finished products.

There was some improvement in the over-all East Coast supply situation in the week ended August 21, it was indicated by the American Petroleum Institute's index numbers of product stock availability covering gasoline and light and heavy fuel oils for civilian use. The supplies rose to 36.8 percent of normal, from 34.5 percent on August 14. The low point was 25.5 percent on May 8, 1943. When the index was started September 12, 1942, the supplies were 60.1 percent of normal.

Despite the slight improvement in the

Eastern supply situation indicated by the above index, there is still a serious shortage in the district. Gasoline is especially short, many suppliers reporting that inventories continue depleted. Meanwhile, only part of the needs of customers can be supplied. Numerous service stations have run out of gasoline, and in some instances motorists have been stranded. The situation with regard to kerosine and light fuel oil is less critical than that of gasoline, some improvement having been made in supplies.

In the Western Pennsylvania refining district, as on the Atlantic Seaboard, there is a critical shotrage of gasoline, because of reduced refinery runs, with crude not available in needed volumes. Light fuel oils also are very scarce. The shortages of gasoline and light fuel oils reflect heavy takings by the government. Lubricants also are very closely held. Petrolatum is extremely scarce now, and with prices at the ceilings, applications have been filed with OPA for higher ceilings.

In the Middle West there is continued strong demand for gasoline, and it is anticipated that refiners may have to reduce deliveries to some customers, in order to comply with PAW directions to provide specific amounts of gasoline for shipment to the East Coast district. To help increase supplies of gasoline, PAW requested that refiners take larger yields of that product, insofar as it is possible to maintain necessary production of kerosine and burner oils. However, scarcity of crude is a basic problem that will prevent any material stepping up of gasoline production.

Some refiners of the upper Mid-Continent currently are having serious difficulty in obtaining transport trucks for shipping out products, although this problem is encountered mainly in Kansas, while scarcity of crude remains a fundamental problem. As in the Middle West, the crude shortage will limit possibilities of increasing production of gasoline and distillate fuel oil, in accordance with PAW's call for increased yields of these products.

Gulf Coast markets remain very tight, with stocks of gasoline continuing to diminish sharply, as supplies move to the East Coast. Supplies of other products also are low and inadequate to meet the current heavy potential demand.

Crude Production Lower But Still Near Peak

United States crude-oil production averaged 4,225,585 barrels a day in the week ended August 28. It was 7010 barrels a day lower than in the previous week, but still not far under the peak of this year.

Contributing toward the decline were Kansas, which was off from 308,100 barrels daily in the week of August 21 to 297,600 in the week of August 28, Michigan from 61,160 to 53,100, Oklahoma from 329,250 to 326,200, Pennsylvania from 44,900 to 42,800, Arkansas from 76,350 to 76,300, Louisiana from 352,500 to 352,150, New Mexico from 105,150 to 105,100.

These decreases were partially offset by increases in California from 786,450 barrels daily to 792,100, Illinois from 206,300 to 212,450, Indiana from 13,000 to 13,400, Kentucky from 23,050 to 23,400, Texas from 1,712,600 to 1,712,800, West Virginia from 8600 to 9500, Wyoming from 101,050 to 102,100.

International Developments

Well Will Be Drilled Under Lake Erie's Bed

Sponsored by West Petroleums of Toronto, a gas well will be drilled a mile offshore in the bed of Lake Erie, opposite the Romney or southern end of Tilbury gas field.

Several gas wells were drilled in the vicinity of Port Alma some years ago, but this well will be drilled at a point four times the distance from high water mark of any of its predecessors. The program calls for three wells, but it is doubtful if more than one will be finished this year.

For a long time gas operators have entertained the belief that formations from which the Tilbury gas field draws its production extend far under the lake, and that, as a result of the gradual intrusion of water in the land wells, enormous quantities of gas have been "trapped" under the lake. If these wells can be drilled in the bed of the lake, three gas resources can be tapped.

The project has been sanctioned by the public works department at Ottawa and calls for building a pier 5950 feet from the shore. Drilling at this distance will mean difficulties not encountered with wells just offshore. The danger of damage by storms is greater. If gas is secured, the care of the pipes, which carry it will furnish a problem. If the venture is successful, gas should be struck at a depth of 1375 to 1425 feet.

Progress Being Made in Western Canada Drilling

Good progress is being made by Canadian National Railways on its 50-well drilling program at Vermillion through Cannar Oils, wholly owned subsidiary. Fourteen wells have been or are near being completed, as latest reports indicate drilling progressing on Nos. 13 and 14.

Advices from the field say No. 6 well pumped 100 barrels in 6 hours, and general results on all wells seem to be satisfactory except No. 5, which appears to have missed the sand.

The recently completed Elmore 1, most easterly well in the field, drilled by Vancouver interests, is reported to be producing 70 barrels per day. This well is about a mile and a half southeast of Cannar.

Moose Dome, Devonian limestone structure, 30 miles west of Calgary, has been restored to the list of oil-producing areas by Hartley Burroughs.

Several Alberta Wildcats Have Important Shows

Several wildcats in Alberta have had important showings.

Sparky 1, south of Lloydminster, is reported to have struck oil. Ram River 2 is applyinz acidization, following production of 33 barrels a day. Showing of gas and oil is reported from Edgerton 1, 20 miles southeast of Wainwright.

Hartley Burroughs of Vancouver leased Moose Oils No. 2 after a two-year shutdown. It filled available tankage of 500 barrels, and resumed when storage was again available. In 1939, 1940, and 1941 the well produced 6089 barrels. Burroughs is mapping plans for a new well in the area.

Turner Valley wells near production level are North West-Hudson Bay 13 at 9300 feet, Foothills 15 at 8569, preparing to drill plug; Imperial-Hudsons Bay 14 and 15, both in lime; Royalite 67, in lime.

Small Pipe Line at Turner Valley Started

Gas & Oil Products, Ltd., has commenced work on a 4-mile 4-inch pipe line from its refinery and absorption plant at Turner Valley field, Canada, to the Arrow Wells tank farm. It will be used to supply gas to the Okalta Oils 13 and Chinook Oils 1 wells. The Okalta well has been rigged up for some weeks, but has been unable to spud because of lack of fuel. The Chinook well is now completing rigging. Their spudding will raise to nine the number of Central Turner Valley wells drilling with backing of Wartime Oils Ltd.

Liquid Fuel Conference Planned at Buenos Aires

Instituto Sudamericano Del Petroleo announces the first South American conference on liquid fuels to be held in Buenos Aires, October 5 to 12.

Objects of the conference are: to study the way to intensify the production of liquid fuels in South American countries; to consider the decisions which might be adopted to obtain the economy and the rational utilization of the liquid fuels in South America; and to consider the possibilities of increasing the exchange of liquid fuels between the South American countries.

Invitations to attend the conference have been extended the API and many institutions of the United States, Central America and South America.

Activities in Venezuela And Colombia Increase

In the past few months the situation for International Petroleum Company, in Venezuela and Colombia has improved considerably, and this betterment is expected to continue according to latest reports to hand.

The company's operations in Peru were not interfered with by war conditions and have continued at a high rate of capacity, limiting shipments to the West Coast and shipping also, it is believed, to Australia.

Japan-Held Refineries In Borneo Damaged

A careful study of photographs confirms that widespread damage was caused among Japanese-held oil refinery installations at Balikpapan, Borneo, on Friday, August 13, by raiding United States heavy bombers, according to a spokesman of the Allied headquarters in the Southwest Pacific.

The photographs were taken from others bombers which flew back over Balikpapan August 16. These raiders rekindled oil fires as well as carrying out reconnaissance.

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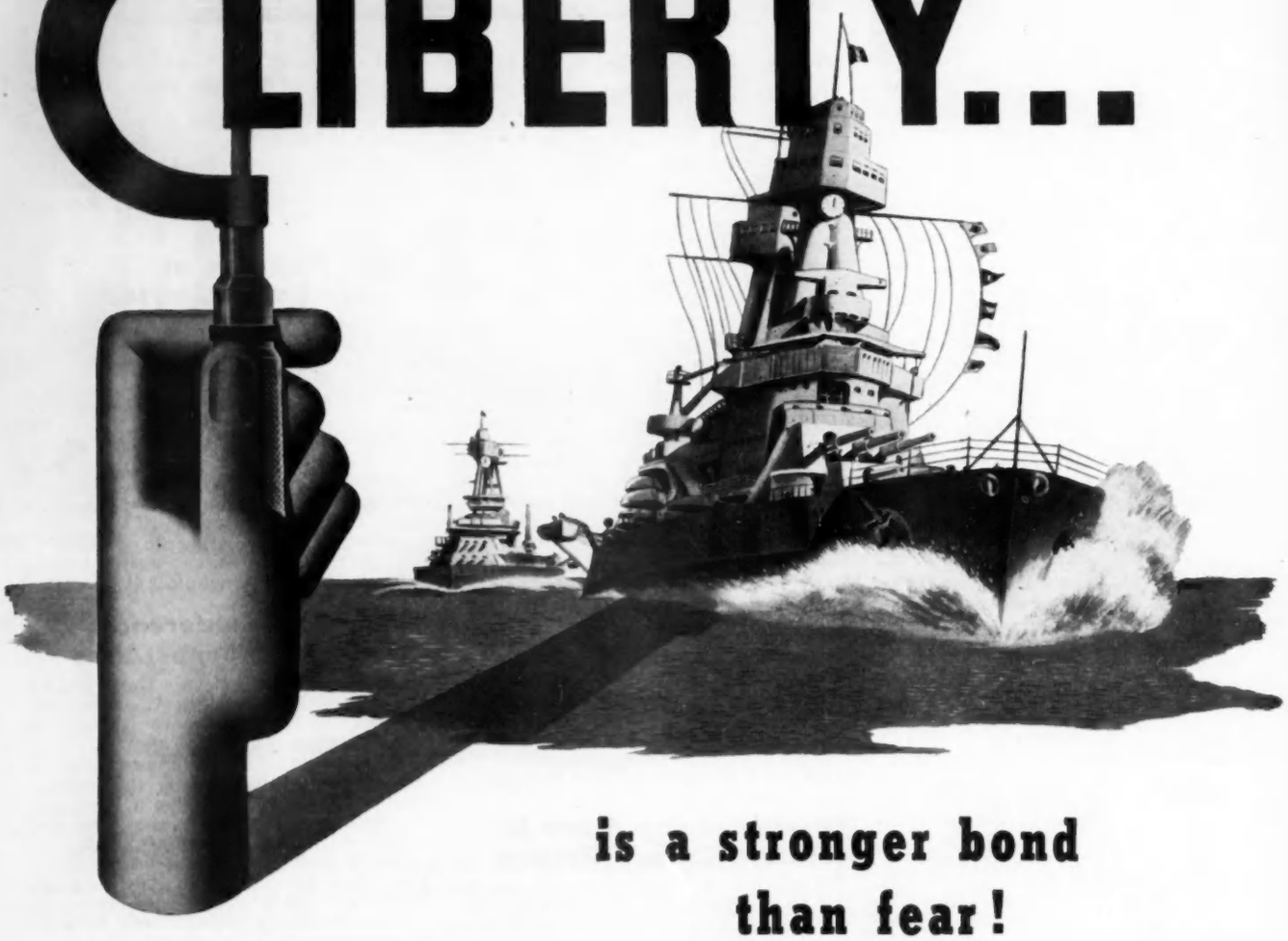

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U. S. Field Operations

Illinois Basin

Six Wildcats Show Production Possibilities

Although no new pool openers were completed during the week, Illinois' interest was heightened considerably with reports from six wildcats, each of which is expected to open a new field or extended proved areas.

Marion County: Gulf Refining Company's Floyd 1, SE SE NW 25-1n-3e, in the southeast part of the county, swabbed 23 barrels of oil in 7 hours following perforations in McClosky lime at 2730-40 feet. The test has not been acidized. It appears to be the first successful wildcat in the county for many months.

Edwards County: The Texas Company's Hayes 1, SE SE NE 10-1n-10e, ¾ mile east of the Maple Grove field, was waiting on cement after 120 feet of oil and 60 feet of oil- and water-cut mud were recovered in a 60-minute drill stem test in McClosky at 3247-56 feet. More than 300 feet of salt water also was recovered.

Deep Oil Company's Sutton 1, S½ NW SW 33-2s-10e, a wildcat, set casing after saturation was recovered in McClosky at 3330-52 feet. On an hour's drill-stem test, the breakdown showed 1900 feet of oil and 1200 feet of salt water. Casing was set at 3352 feet.

White County: Great Lakes Carbon Corporation's Miller 1, SW SW NE 28-6s-10e, a wildcat, recovered gas, 12 feet of oil and 258 feet of oil-cut mud in a 45 minute drill-stem test at 2890-2919 feet. Casing was cemented to the top of the prospective pay section.

Richland County: R. B. Martin's Boyd 1, a wildcat in S½ SE SW 26-2n-10e, was regarded as a pool opener after 60 feet of oil, 90 feet of oil-cut mud and some sulphur water were recovered in a 65-minute drill-stem test of McClosky at 3240-55 feet. On a second drill-stem test at 3240-57 feet, gas began flowing in 2½ minutes.

Franklin County: Nash Redwine and Sohio Corporation's Taylor 1, SE SE NW 21-5s-3e, was waiting on cement after a plugback from dry McClosky to Benoist sand where a drill-stem test at 2668-80 feet recovered 270 feet of oil and 80 feet of salt water in 2 hours.

Indiana

Posey County: Lewis Production Company's B. Sussick 1, NW SW 27-1s-14w, two miles southwest of Hovey, was abandoned through a dry McClosky.

Kentucky

Henderson County: Kingwood Oil Company's Rash 1, SE NW NW 16-Q-25, is a wildcat location four miles northeast of Henderson. This company's White 2, NE SE SW 11-P-24, four miles southeast of Henderson, is location for a 450-foot test.

Sinclair Prairie Oil Company's J. L. Chandler 1, C SE 3-N-23, was completed in Hardinsburg sand at 2076-90 feet, initialing 36 barrels on 12-hour swab test with show of water.

Union County: Kingwood Oil Company and N. V. Duncan's Deacon 1, SE SE 16-Q-20, wildcat three miles north of Uniontown, was drilling at 1774 feet. Starting at surface elevation of 351 feet, Kincaid was topped at 1568 feet.

Kingwood Oil Company's Lilly 1, NW NW NW 21-O-19, wildcat one fourth mile southwest of Morganfield, was drilling plug at 2721 feet to perforate McClosky at 2704-09 feet. Hole is bottomed at 2802 feet.

McLean County: R. G. McIntyre's O. C. Whitfield 1, N½ SE NE 2-N-25, is a wildcat location.

Hancock County: W. R. White et al Hancock Land Development Company, NW SW SE 20-P-34, wildcat two miles west of Patesville, has been abandoned, through McClosky, at 680 feet.

Oklahoma

Major Extension In Medrano Sand At Cement

Most interesting of Oklahoma exploratory tests is Gulf Oil Corporation's Sherritt 1, SE NW NE 33-6n-10w, west of production in Cement field, Caddo County. Medrano sand, topped at 5770 feet, was drilled to 5930 feet. Perforated between 5880 and 5930, the lower 50 feet of the sand body showed production, and on a 5-hour test flowed 95 barrels through a ⅛-in. choke and in 24 hours the flow was 329 barrels. It was then shut in for tankage. This producer is 1¾ miles west of the nearest Medrano sand production, to add important acreage to the field. Tools are being moved in for Sherritt 2, SW NE NE and for Sherritt 3, CNE SE NE, in section 33.

Lincoln County: Mid-Continent Petroleum Corporation is running electric log at Fowler 1, SW NE 33-13-4e, after the wildcat showed 372 feet of oil and mud from Wilcox sand, topped 5542 feet and drilled to 5462 feet. Viola was dry.

Washita County: Gulf Oil Corporation's Hopkins 1, CNW SE 8-8n-20w, a test to the deeper strata in this area, is rotating tools at 7569 feet in Pennsylvanian sands and shales. At a shallow depth this well made a small volume of oil from broken granite wash.

Oklahoma County: Stanolind Oil & Gas Company's Johnson 1, NW SW NE 9-13-1e, is drilling as a wildcat test of a deep seismic high with hole at 2026 feet.

Fox & Schmidt's Ringer 1, NW NE SE 31-14-4w has extended the West Edmond field a location west and is running tubing for a test after initial flows through casing showed a relatively swift decline of both gas and oil flow from Hunton lime. Casing has been perforated at 6937 to 6984 feet, and on first tests the well gauged as high as 129 barrels in 30 minutes.

Comanche County: Fort Sill field has been extended southeast and northeast as the result of two recent tests. Ray Stephens, Inc's Hallum 1, NE SW SW 3-3n-10w, nearly a mile northeast of production, came in for a flowing well from the sand at 1,230 feet. Previously, The Texas Company made a dual completion at Schooland C-1, CNW NE 16-3n-10w, by completing in sand at 800 feet and between 988 and 1,003 feet for a 6-barrel producer.

Kansas

Two New Pools; Major Extension At Lindsborg

Viola lime is showing in Reno County for major production to open a new field northeast of Hilger, also productive from Viola. Phillips Petroleum Company's Manning 1, C SW NW 34-25-4w, a little less than 2 miles northeast for production swabbed 259 barrels of oil in 5 hours on initial test, and on final test made 2,595 barrels, no water showing. Oil checked at 39 gravity. Hole is bottomed in lime at 4102 feet. A number of tests in the vicinity of Hilger have been drilled in attempts to find additional Viola production but this is the first successful try in the vicinity, and is in a direction away from the field thought to offer the least possibilities of opening new production.

Rice County: D. Ackley and L. Quinlan's (West-Kan Drilling Company) Keller 1, SW NE SW 9-19-9w, north of Chase, has been granted an initial potential of 249 barrels as a discovery. Production is from conglomerate at 3243 feet.

McPherson County: A major extension is near completion south of Lindsborg field. Bay Petroleum Company's Lundstrum 1, CWL SW SE 36-17-4w, on first 24-hour test pumped 462 barrels of oil and no water from Viola lime at 3383½ feet. The well is the most southerly producer in the field and is a 4-acre offset to nearest production. The well adds some 250-300 acres to the southern end of the field.

Russell County: Jones & Shelburne's Flue 1, CS½ NE SW 5-15-12w, has extended Greenvale pool ½ mile south after filling 1800 feet with oil from Arbuckle at 3068 feet. An offset is starting.

Saline County: Ingling and Parker Drilling Company may be opening a new pool for this County at Reiff 1, CSL SE SE 10-15-2w, 15 miles northeast of Lindsborg. The hole is in Mississippi chat and testing, with last reports indicating some free oil standing in the hole but with testing incomplete.

North Texas

Well Showing Indicates Hildreth Field of Importance

Expansion of the Hildreth two-pay field, Montague County, ⅞-mile east to indicate that it may become an important producing area materialzed when Continental Oil Company's Gadberry 1, NWc E. T. Ry. Section 55, flowed oil into pits for 27 minutes through tester used at 6115-50 feet. Production is from conglomerate in Bend series, topped at 6085 feet, being 54 feet low to the nearest well. Gadberry 1 was drilling below pay at 6200 feet to explore Simpson before setting pipe.

Continental Oil Company's Vaughn 2, 1209 feet northwest of its 3466-foot discovery for the Illinois Bend field, missed this upper zone, and tested 120 feet of oil-cut mud from new sand at 3723-38 feet. It will be deepened to the 3860-65-

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2. To siphon into production channels that portion of America's *current income* which would otherwise flood the Nation with inflationary cash.

3. To create individual backlogs of financial security for use during the industrial readjustment after the war.

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Keep after that "10% of gross payroll goal"! Buy War Bonds to the limit yourself—encourage your employees to do likewise!

foot Strawn sand uncovered by the pool's original well.

Archer County: S. D. Johnson et al's Coleman 1, 4 miles east by north of Scotland field, nearest production, established a new Basal Bend pool in flowing 75 barrels of oil, representing accumulation, on 3-hour gauge, then quit. This wildcat was shot with 25 quarts of nitro at 5706-16 feet. Top of Bend was called at 5466 feet, and conglomerate pay at 5697-5716 feet.

Prospects: W. T. Waggoner Estate's Fee 1-PP, 1¼ miles east of its recent Ellenberger discovery in Southeastern Wilbarger County, has set pipe to test probable production in Ellenberger at 4344-84 feet. This semi-wildcat yielded 300 feet of oil-cut mud when tester was used in Bend saturation at 4038-52 feet. In northeastern Young County, British-American Oil Producing Company's Barrett-Carpenter 1, E. W. Sergeant Survey, proved dry in Ellenberger at 5419-50 feet, and will be plugged back to Mississippian saturation at 5194-5243 feet. Bruce Sullivan and Anderson-Prichard Oil Corporation's Waggoner 1, TE&L Section 775, eastern Throckmorton County, was drilling near the 4200-foot level after recovering 25 feet of oil-cut mud on drill-stem test in Bend saturation at 4093-4103 feet.

West Texas

Keystone Well Produces Oil from Clear Fork

Production from the Clear Fork zone of the Permian indicated through the drilling of an Ellenburger producer on the Keystone structure, Winkler County, has been confirmed. Sid Richardson and Perry Bass, Inc.'s Walton 4, ¾-mile southwest of the deep strike, logged adequate oil-saturated lime at several zones between 4675 and 4854 feet to make a producer. Five-inch liner has been cemented on bottom at 4900 feet, and initial perforations will be in lower pay at 4835-54 feet. Walton 4 is about 35 feet low on the Clear Fork.

American Republics Corporation's Hendrick 4, deepened producer in Hendrick field, was drilling lime at 4105 feet, and is also to try for production in Holt lime and Clear Fork. In the event it uncovers a profitable deeper pay, large-scale development would follow since some Hendrick field leases are about depleted.

Gaines County: Amerada Petroleum Corporation's Robertson 6, east edge of the Seminole field, found the Permian non-productive below the field's regular San Andres lime pay in drilling to 9312 feet. The hole was plugged back to 7058 feet in Clear Fork, and drill-stem test with packer at 6830 feet yielded 744 feet of rotary mud. An attempt will be made to complete in regular pay through perforations.

Stanolind Oil & Gas Company's American Warehouse 15, Cedar Lake field, was drilling without shows in cherty-lime at 11,090 feet. Humble Oil & Refining Company's Cox 1, wildcat, has confirmed structural position in logging broken oil saturation at 4850-4960 feet in San Andres, topped at 4600 feet, elevation 3552 feet. Coring was resumed to fulfill 9000-foot depth contract, or probably proceed to Ellenberger. Continental Oil Company's Jones 1-A, 4 miles west by north of the Russell pool's 7772-foot Clear Fork pumper and high structurally, failed to encounter adequate porosity and saturation to make a producer in coring hard lime at 7710 feet.

Amon G. Carter, discoverer of 6200-foot and 7400-foot Clear Fork oil production in the Gaines County sector of the Wasson field, has been given equipment priorities to proceed with the drilling of 3 outposts that are scheduled to be dual-completions.

Andrews County: Union Oil Company of California's Biles 1, recent Clear Fork discovery 4½ miles northwest of the prolific Fullerton field, increased its output to 25 barrels of 42-gravity oil hourly on 7-hour test through 50/64-inch choke after using 4000 gallons of acid through perforations at 7259-7431 feet, having plugged back from 7457 feet to 7446 feet. Premium quality of this oil will enable operators to obtain high priority rating on tubular goods.

Reagan County: Preliminary test given Amerada Petroleum Corporation's Johnson 1, mile north outpost for the Barnhart field, indicates that the most productive sector of the field is being uncovered and likewise the highest portion of the structure. Top of Ellenberger was encountered at 8830 feet with elevation of 2756 feet, and water table was established at 9250-55 feet. The well flowed 196 barrels of oil on 4½-hour gauge through 1-inch choke after using 5000 gallons of acid through perforations at 8940-55 feet. Additional perforations will follow in the main pay, topped at 9049 feet. It is the largest Ellenberger producing area in the basin, with a single failure on the extreme west end.

Wildcats: Woodley Petroleum Company's Howard 1, Hockley County, abandoned at 6204 feet, having logged San Andres at 3650 feet and Glorietta at 5030 feet. In Pecos County, Phillips Petroleum Company's Price 1 is nearing the district's depth record in drilling shale and dolomite at 12,495 feet. Amerada Petroleum Corporation's Kurfees 1, Hale County, was drilling shale with streaks of sand at 7813 feet. Texas Pacific Coal & Oil Company's Lane 52-A, McCamey field, had logged 450 feet of hard Devonian in drilling at 6900 feet on a 7000-foot contract.

Operators Protest Texas "Discovery Allowable" Plan

The Texas Railroad Commission last week held the first hearings involving its new-field-allowable order issued August 17. Under provisions of this order each well drilled a half-mile, or more, from proven fields is granted a new field allowable. Thus, it is possible to expand old fields and receive unusually high production from the additional wells drilled. This was the feature of the order which was not readily apparent at the state-wide hearing when it was announced.

More than one operator objected to the program, but Phillips Petroleum Company took occasion to file a written protest set out below:

"We wish at this time to express our views on the subject and go on record as opposing the granting of such discovery allowable.

"The half-mile extension provision of the state-wide "Discovery Allowable"

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REED *Super Shrink-Grip* TOOL JOINTS

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Eliminate...

COSTLY DELAYS AND HIGH TRANSPORTATION COSTS

REED ROTARY DRILLING TOOLS

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HOUSTON, TEXAS

Rule (Order No. 20-3305) would not apply in this case inasmuch as production in this part of the Panhandle field was discovered prior to the effective date of the order, January 15, 1943. It is, therefore, assumed that applicant will attempt to show that a new and separate reservoir has been discovered by the drilling of said Darsey 1 well. If this is the case, we would like to point out that a single dry hole located in the NE NW Section 8, Block B-2, H&GN Survey would obviously not prove a complete segregation between the two areas of production. In fact, we believe it very likely that Dolomite production will extend across to the north and east of this dry hole along the general trend.

"Phillips Petroleum Company has long supported the commission in its stand that the Panhandle field is one common source of supply. All past allocation and regulatory procedure have been based on this premise and we feel that to depart from this position now would be most undesirable. Consequently, we feel that the granting of a "discovery allowable" to any of the present known pay sections of the Panhandle field would be establishing a bad precedent."

East Texas

Smackover Test Shows Prospect of Producing

Prospecting for Smackover lime production in East Texas registered initial bid for successful completion when the Sun Oil Company's Rutledge 1, E. Parsons Survey, Northeastern Kaufman County, recovered porous lime, carrying oil odor and stain, in coring Smackover at 10,042 feet to 10,057 feet. Operations were halted to run electric log, then set pipe for a decisive test. This wildcat has open hole below 4031 feet, and carried 8¾-inch hole below. Smackover lime is the deepest known geological zone that has production possibilities in East Texas. All previous tests, which are in Bowie, Franklin, Hunt, Limestone and Panola counties, were failures.

Sun Oil Company's wildcat entered Cotton Valley at 7577 feet, with elevation of 584 feet, followed by an unusually thick section of Buckner, topped between 9100-9200 feet, with broken and solid salt zone at 9830-9960 feet. In the Arkansas-Louisiana district the Buckner is 200 to 400 feet in thickness, and usually void of salt beds. Humble Oil & Refinery Company's recent Hunt County Smackover failure, 10 miles north of the Kaufman County prospect, logged 414 feet of Buckner with a 70-foot salt section, then entered Smackover at 9015 feet, quitting in Eagle Mills salt at 9512-23 feet.

Hunt County: Stanolind Oil & Gas Company has spudded Hamilton 1, east offset to its Caston 1, a failure that cut the fault too low to make a Paluxy producer in the Campbell pool. The company's Bickley 1, wildcat 1¾ miles southwest of Commerce, was drilling sandy-lime at 4890 feet.

Failures: Grelling et al's Blalock 1, Hopkins County wildcat, tested water in Paluxy at 6323-81 feet. In Freestone County, R. L. Wheelock et al's Hill 1, 1½ miles northwest of Fairfield, was dry in Woodbine and is awaiting orders at 4500 feet.

Wood County: Shell Oil Company's Bailey 1, west offset to the Manziel pool discovery, exceeded preliminary estimates in flowing 181 barrels of 32½-gravity oil initial through ¼-inch from perforations in broken Paluxy sand 6274-97 feet.

Production limit for the south portion of the Quitman field was partially defined when Shell Oil Company's Goldsmith 6 abandoned at 6705 feet in Paluxy topped at 6302 feet. A previous failure on the southeast edge of the original producing area encountered a faulted condition. A major extension to the west will be sought by J. R. Smith et al's Jones & Werner 1, F. Herniger survey.

Southwest Texas

Distillate Well Indicates Rincon Field Extension

Attention in the Southwest Texas area this week still centered around Continental Oil Company's attempt to extend the Rincon field, Starr County, with Cameron 1, in the George W. Smith Survey, 1¾ miles northeast of Rincon. The well was being re-tested and flowed 12 barrels of oil with almost twice that amount of salt water on a 3-hour drill-stem test through ¼-inch choke, from new perforations at 4560-64 feet. Operators have made a location for Cameron 2.

Sun Oil Company was coring Laurel 3 below 8600 feet, another Starr County test which if successful will mean an extension to the North Sun field. The well tried to blow out last week at around 7340 feet. Gas sand was topped at 8476 feet.

Bee County: An extension to the North Pettus-Wilcox field is apparent in Hewitt and Dougherty's Inez Spielhagen 1-W, 3000 feet northeast of distillate production. The well was making colored 47-gravity distillate with no gauge, with approximately 3 700,000 feet of gas daily on a 2264-inch choke, from a new pay zone in the Wilcox perforated at 7398-7401 feet, on a second test. Previous perforations at 7398-7403 feet yielded a large volume of gas with 71 barrels of distillate with a small amount of water. The deep pay was logged at 7320-55 feet.

Live Oak County: Tests of several new deeper sands reported to have been encountered in Henderson Coquat's Walter W. Goebel 2, Goebel field, are awaited with interest. Perforations are being made after 5½-inch casing was set at 7814 feet. Located 1320 feet southwest of the discovery, Goebel 2 is in the southwest corner of Refugio County School Land Survey, and is 3 miles east and northeast of Oakville townsite. The deep pays are below the 6900- and 7050-foot Carrizo sand discovery pays. It is believed that one of the deeper sands in Goebel 2 may correspond to the discovery pay in Coquat's Mrs. Minerva Coquat 1, 1½ miles east and southeast of Goebel 1.

Fayette County: Continental Oil Company's Tom E. Cockrill 1, adjacent to the southwest edge of Cistern townsite, and one-half mile south and southeast of Fannie Gavitzsch 1, shallow gas discovery, tested water this week. Total depth of the hole is 4498 feet, but the level being tested was not reported.

Colorado County: Tests indicate a field opened by Magnolia Petroleum Company in the Chesterville area, in Anderson 1, GH&H 15. The well showed distillate in the 9500-foot Wilcox and the 6850-foot Cockfield. Two other Cockfield sands indicated commercial output on previous tests. In the tests perforations were made in the Wilcox at 9500-40 feet, and the well flowed 7½ barrels during the last 45 minutes through ¼-inch top and ⅜-inch bottom chokes, 1450 pounds working pressure, 3,000,000 feet of gas daily. In the Cockfield, perforations were made at 6850-60 feet, and on a 10-hour run, 15 barrels of distillate were recovered, 1250 pounds working pressure, ¼-inch top and ⅜-inch bottom chokes. Dual completion will be made.

Texas Gulf Coast

Wharton County Test Gives Promise of New Field

A new field in Wharton County is promised in W. Stewart Boyle et al's Claude Appling 1, northwest of Louise, in the James Devers Survey. The well was scheduled to test the 4100-foot sand after a squeeze job to shut off a gas sand encountered earlier. Total depth of the hole is 6007 feet and 5½-inch casing is set to about 4200 feet. Last week on a drill-stem test at 4085-4118 feet, more than 200 feet of oil was recovered, in 6 minutes with 700 pounds pressure.

Humble Oil & Refining Company is preparing to test its 3000-acre block of acreage in the Hungerford area, scene of many wildcats. Location has been made for Duncan 1-B, in Edgar Survey, A93. The test is scheduled to start at once and will be to 8000 feet.

Harris County: Nielsen et al's F. A. Reichardt 1, west extension test in the Dyersdale area which was on choke several days ago from perforations in sand at 4058 feet, had trouble with the flow and squeezed perforations. Preparations are now being made for another completion attempt.

Galveston County: A new test is being made just northeast of Algoa townsite in Jack W. Frazier, Ray Ranger and Weber Ogden's Cooper Unit 1. The well was spudded this week and is contracted to 9500 feet. Location is 560 feet from the west and 535 feet from the south lines of Lot 64, Block 13.

Brazoria County: Humble Oil & Refining Company has applied for a permit to deepen its Houston Farms 2-B, in the Halls Bayou area, to 12,000 feet. The discovery well in this area produces from sand below 10,300 feet.

Pan American Buying Interest in Gulf Coast Fields

Negotiations between Pan American Production Company and Adams Oil & Gas Company for the latter company's quarter interest in the Oyster Bayou, Seabreeze and Willow Slough oil fields of southern Chambers County, now await only the clearing of legal technicalities in tax and title matters for the interest to pass to the new owners. The consideration is understood to be $9,500,000, and to cover the Adams holdings of upwards of 30,000 acres in the

three fields. The three fields are operated by Sun Oil Company, the Adams interest being a one-quarter carried interest out of the seven eighths interest in the properties. The change in ownership is not expected to involve any change in field operations.

The three fields are regarded as being prolifically productive under present development, with prospective reserves high in the list of Gulf Coast fields. Oyster Bayou ranks as one of the six highest on the coast, including reserves.

The Oyster Bayou field was discovered in 1941, producing from the Frio at around 8135 feet, with an average sand thickness of 145 feet. It is a deep-seated salt dome, worked by reflection seismographic prospecting. Over 200 acres are now producing, with the field estimated to include 1360 additional acres yet to be developed.

The Seabreeze field is another deep-seated salt dome, discovered in 1935. Production is from the Frio, at around 8470 feet, with a sand thickness averaging 25 feet. About 280 acres are now producing, with 1300 as yet undeveloped on structure.

The Willow Slough field was discovered in 1937. It also produces from the Frio, around 8490 feet, with an average sand of 10 feet. It has approximately the same developed and prospective area as the Seabreeze unit.

Present production from the three fields totals 8000 barrels under September allowables, from 36 wells. There are also 10 gas-distillate wells in production in the interests to be transferred.

South Louisiana

New Wildcats Start In Several Parishes

A number of new wildcat locations featured developments in the Louisiana Coastal area this week. A new test for the Sunset area of St. Landry Parish was spotted by Abercrombie et al, contracted to 12,000 feet to test the Jackson series.

Terrebonne Parish: Humble Oil & Refining Company has located Laterre 2-B at South Houma to try to extend the area. A company rig will be used to make the 11,500-foot test.

Calcasieu Parish: Northwest of the old Edgerly field, Commonwealth Exploration & Drilling Company will drill to 4000 feet in Kidder 1, a new wildcat.

Tangipahoa Parish: In southeastern Louisiana, north of Lake Ponchartrain, Humble Oil & Refining Company is starting a wildcat in the Ponchatoula area. A company rig will test to 9500 feet.

Acadia Parish: Amerada Petroleum Corporation's Clarence D. Daigle 1, about a mile south of Lewisburg production, has reperforated pipe at 10,338-53 feet, and flowed 79 barrels of distillate in 19½ hours. A previous test at 10,306-16 feet had resulted in 118 barrels daily.

Beauregard Parish: Sohio Oil Company's Lutcher-Moore 1, 34-6s-12w, a wildcat 8 miles west and three miles north of DeQuincy, plugged back from 10,911 feet after a water flow in the Wilcox to test the Bancroft Cockfield. One test was made but without results and the well is not expected to make a producer.

North Louisiana

Two Caddo Wildcats Get Further Testing

Continued testing of two wildcat wells in western Caddo Parish after tests of two zones failed to indicate paying production, has been announced. H. L. Carnahan's Glassell-North 1, section 26-20-15, drilled to 5300 feet, was perforated from 3965 to 3975 feet to test a show in the Rodessa series. It swabbed salt water and a show of gas, swab was lost but later recovered and operators are now going back into the hole with tubing. Rig will be moved off but a later test of the 2700 foot level in the Paluxy is planned.

After continued testing of the Pettit zone failed, Frank J. Hall's Kent Breard 1, section 9-18-16, is preparing to test the Travis Peak around 6100 feet. The Pettit showed about a half million cubic feet of gas with 5 to 6 barrels of distillate per day. Last perforations were from 5588 to 5609½ feet.

A new test of the Cotton Valley series is planned for the Bellevue shallow producing area of Bossier Parish where a 9000-foot test of Phillips Petroleum Company failed last year in the lime. D. C. Richardson, Jr., of Shreveport has made location for J. T. Wortzbaugh, 660 feet east and 3330 feet south of NWc 25-19n-11w. W. G. Ray Drill-

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ing Company is contractor. Permit calls for drilling to the 7000-foot level.

Shell Oil Company's S. H. Bollinger 1, outpost of the North Carterville field, Bossier Parish, SW 2-23-12, made a little oil after perforating from 6032 to 6050 feet. Show was similar to Hunt Oil Company's Nebo 1, discovery well, to the west. Testing is being continued.

Frank and George Frankel's Muslow 1, deep discovery in the old Homer field, Claiborne Parish, Section 30-21-7, is being prepared for final completion after flowing 81 barrels per day on 24/64-inch choke after perforating at 4282-92 and 4315-20. Casing pressure was 550, tubing pressure 30, oil gravity 46.6, 17 percent water, ratio 2070 to 1.

Big West Drilling Company's Patton 1, Section 1-20-5, Lisbon field, Claiborne Parish, was officially estimated at 63,000,000 cubic feet from 8975 feet.

Mississippi

Adams County Test Has Heavy Gas Flow

The California Company's Natural Gas of Louisiana 1, Section 52-7n-1w, Adams County, tested a heavy flow of gas from the 10,300-foot level. Additional zones will be tested in an effort for oil completion.

The well is 15 miles west of Natchez and the same distance from Pure Oil Company's McDowell 1, discovery south of Natchez. The California Company well is testing the Tuscaloosa formation from which Carter Oil Company's discovery is producing in Tensas Parish, Louisiana, 35 miles northwest.

Michigan

New Dundee Oil Strike in Clare County

Leonard and Rowmors' Miltner 1, S½ SW SE 1-20n-6w, Winterfield Township, Clare County, flowed 126 barrels of oil in 13 hours through 7-inch casing after standing 36 hours from time of drill-in to indicate new Dundee dolomite field. Test logged Dundee at 3834 feet and was bottomed at 3840 feet. This wildcat has sea elevation of 1198 feet and correlates high enough with previously drilled deep wells in the area to indicate good structure. This is third test by Leonard and Rowmor in cooperation with Pure Oil Company and other operators in an attempt to develop a pool. A previously drilled deep well discovered the Cranberry Lake gas field at an average productive depth of 1400 feet in the Michigan Stray. The well is approximately 4½ miles northeast of the West Winterfield oil-gas field and about the same distance north of the East Winterfield oil pool. All produce from a dolomitic section in the top of the Dundee.

Arenac County: Smith Petroleum Company's Stone 2, NW SW SW 14-19n-3e, on the northeast side of the old North Adams field, and 660 feet north of a dry hole on the same lease, completed for an estimated daily potential of 5000 to 7000 barrels from Dundee lime at 2891 feet. It develops possibility of still farther extension of the pool north into an area generally regarded as condemned two years ago by dry holes flanking the field.

Newaygo County: Cities Service Oil Company's Fetterle 1, E½ SW SW 9-14n-11w, deepened to 3407 feet after logging Traverse lime low at 2777 feet, and is waiting orders. It is a southeast diagonal offset to the Traverse lime discovery in the field.

Osceola County: Sun Oil Company logged Dundee lime at 3797 feet on Pierson 1, N½ NE SW 29-18n-8w, 1¼ miles west of Evart field and had failed to log saturation to 3828 feet.

H. H. Coffield's Schwalm 1, NE SE SE 22-17n-10w, wildcat 3 miles south of Reed City pool, logged Dundee at 3674 feet and was drilling at 3712 feet.

Allegan County: W. S. Cook's Dykhuis 1, NW NW SW 2-4n-15w, Fillmore Township, 1 mile northwest of the Fillmore discovery well, completed for a 10- to 15-barrel Traverse lime pumper at 1522 feet. Despite an apparent mile extension of the field, the area is unimpressive.

California

Cat Canyon and Aliso Canyon Limits Extended

Pacific Western Oil Corporation's step-out to the north in Cat Canyon field, Santa Barbara County, with Los Alamos 23, made 2316 barrels on initial flow.

Tide Water Associated Oil Company's Porter 47, more than a quarter of a mile from limits of Aliso Canyon field, was brought in with an initial flow of 2280 barrels.

This extension is of significance as it carries promise for the upper zone producing over an extensive area. Beyond western limits of the same field, Tidewater's Sesnon 1-2 has cored the Sesnon sand, at about 8800 feet with good showings. This zone was a discovery in 1942, but its development has been delayed.

Fresno County: The recent discovery near Raisin City touched off considerable activity in this area. Universal Consolidated Oil Corporation is under way with an outpost to the southeast. Seaboard Oil Company, discoverer of the field, has staked a second location in 14-15-17. Shell Oil Company is starting a wildcat in 10-15-17; and it is reported The Texas Company is preparing to drill to the north.

Kern County: Standard Oil Company's search for Eocene in its deepened KCL 12-6, south flank of Greeley field, was unsuccessful. After finding hard basement rock at 13,610 feet the hole was carried to 13,666 feet before abandonment. No showings were encountered below the old bottom at 11,942 feet which once produced good volumes of 37-gravity oil from the Rio Bravo zone. Despite this failure, tests of these lower levels will be made by several other companies.

Santa Barbara County: Success of O. C. Field Gasoline Corporation's Arellanes 1,F,13-9-35, Casmalia area, in effecting 8-gravity production from 1898 feet probably will qualify as a new field discovery. Distillate injection is used to facilitate lifting the heavy oil, daily output as high as 150 barrels having been obtained. On an adjacent location the company is running casing on a second well, after reaching 1500 feet.

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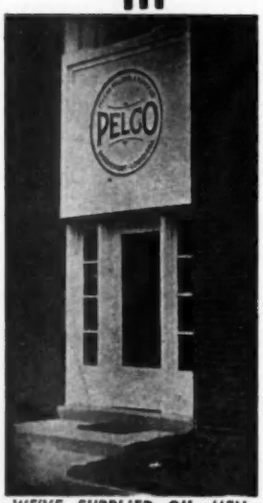

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United States Well Completions

ARKANSAS

Union County—New London: Sidney et al's King 1, sw ne 12-18s-12w, abnd 5910 ft.

Columbia County—Macedonia: Grady Vaughn's Franks-Nipper U-1, s½ nw 16-18s-21w, perf Cotton Valley 8000-26 ft, flow 25 bbls 1 hr, ¼-in, td 8940 ft.

ARKANSAS WILDCAT

Union County: L. B. Manley's J. W. Edwards 1, sw sw sw 2-19s-18w, abnd 2314 ft.

CALIFORNIA

Fresno County—Coalinga, old field: Fresno Oil Inv. Co.'s 1, nw ne se 20-19-15, abnd 2365 ft.

Shell's 156-26, sw nw se 26-19-15, pump 278 bbls 16.5-gr, perf 3062-2979, 2889-2734 ft, black shale 2718 ft, td 3070 ft.

Shell's 155-29, nw nw se 29-19-15, pump 184 bbls 19.7-gr, perf 2138-2112, 2090-2055 ft, black shale 1893 ft, td 2140 ft.

Standard's 47-11A, se nw sw 11-19-15, pump 159 bbls 18.7-gr, perf 1531-1561, 1584-1626 ft, td 1777 ft pd 1630 ft.

Standard's 44-1C, se sw nw 1-20-15, pump 63 bbls 19-gr, 107 ft perf 3872 ft, td 4000 ft, pd 3878 ft.

Standard's 95-11A, ne se nw 11-19-15, abnd 2438 ft.

Kern County—Belridge, South: Belridge Oil Co.'s 18-35, sw sw sw 35-28-21, pump 45 bbls 12.9-gr oil, 17 sand and water, perf 624-714, 901-963, 1043-1125 ft, oil sand 622 ft, td 1125 ft.

Belridge Oil Co.'s 28-35, se sw sw 35-28-21, pump 10 bbls 13.5-gr oil, 90 water, perf 968-1058, 1130-1200 ft, td 1200 ft.

General Petroleum Corp.'s 47-12, nw se ne 12-29-21, pump 65 bbls 13.5-gr oil, 5 water, 82 ft perf 1019 ft, td 1117 ft, pd 1020 ft.

Shell's FKL 41-12, nw ne sw 12-29-21, pump 67 bbls oil, 16 water, perf 1079-1073, 1068-1043, 1014-985, 980-970, 938-912 ft, td 1080 ft.

Shell's FKL 92-12 se nw se 12-29-21, pump 28 bbls 16.5-gr, perf 1114-1093, 1077-1065, 1045-1023, 1008-993, 966-943 ft, first oil sand 945 ft, td 1115 ft.

Kern County—Buena Vista Hills: Standard's 215-11D, se se sw 11-32-24 pump 19 bbls 27.6-gr, 53 ft perf 2683 ft, td 2685 ft.

Kern County—Cymric: Honolulu Oil Corp.'s Fitzgerald 51A-26, nw nw ne 26-29-21, pump 34 bbls 12-gr oil, 227 water, perf 1183-1221, 1299-1318 ft, td 1335 ft.

Kern County—Fruitvale (Old well deepened): Western Gulf Oil Co.'s Fisher 1, sw sw ne 21-29-27, pump wash oil and water, sanded up, perf 4315-4295, 4015-3995, 3915-3895, 3880-3860 ft, otd 4315 ft, deepened to 4416 ft.

Western Gulf Oil Co.'s Burlock 1, se nw se 21-29-27, pump 70 bbls, perf 5335-4325, 4310-4270, 4045-4035, 3990-3975, 3915-3910, 3890-3880, 3870-3860 ft, otd 4159 ft, deepened to 4555 ft.

Kern County—Kern Front: Kern Oil Co.'s 25-4C, sw ne nw 25-28-27, pump 10 bbls 15-gr oil, 2 water, 54 ft perf 1883 ft, td 1938 ft.

Standard's 19, sw se ne 27-28-27, pump 49 bbls 14-gr oil, 3 water, 290 ft perf 2560 ft, td 2565 ft.

Westates Petroleum Corp.'s Cauley 4, se ne se 16-28-27, pump 29 bbls 12.5-gr oil, 11 water, perf 2500-2550 ft, 2372-2394, 2435-2445 ft, td 2565 ft.

Kern County — Midway-Sunset: Richfield's Fairfield 15, ne se nw 11-31-22, pump 130 bbls 16-gr, 58 ft perf 1348 ft, td 1481 ft, pd 1350 ft.

Kern County—Round Mountain: Crestmont Oil Co.'s Staley 13, nw ne se 8-28-29, pump 60 bbls 17-gr, 88 ft perf 1419 ft, td 1419 ft.

Trico Oil & Gas Co.'s Coffee 13, ne ne ne 8-28-29, pump 100 bbls 15.9-gr, 43 ft perf 1490 ft, td 1490 ft.

Los Angeles County—Wilmington: Atlantic's Meeker 1, 170 ft s 155 ft e c/ls Wilmington Blvd. and "M" St., pump 140 bbls 16.2-gr oil, 25 water, perf 3509-3730, 3089-3327 ft, td 3730 ft.

Long Beach Oil Developemnt Co.'s W 44, 931 ft nely along n/l Seaside Blvd. fr e side 27th Ave. thence 1978 ft sely at r/a, flow 590 bbls 18.1-gr, 48/64-in, 60/500 lbs, 309 ft perf 3004 ft, td 3005 ft.

Orange County — Huntington Beach (Old well deepened): Signal Oil & Gas Co.'s Bolsa 12-A, 1039 ft n 330 ft w swc Bolsa lease, 157 bbls 25-gr, perf 3108-4210 ft, otd 3872 ft, deepened to 4377 ft.

San Joaquin County—Lodi: Amerada's Comm. 15-1 ne sw nw 15-4-7, 6,420,000 gas, ¾-in, perf 2280-2320 ft, td 2700 ft.

Santa Barbara County—Cat Canyon: Pacific Western Oil Corp.'s Los Alamos 23, 3630 ft syl 330 ft ely nw ppty cor, flow 2316 bbls 20-gr, 44/64-in, 679 ft perf 5870 ft, td 5870 ft.

Sutter County — Marysville Buttes: Shell's Shell-Buttes 1, 1320 wly along n/l fr nec thence 400 ft sly at r/a, flow 2,150,000 gas, 460-565 lbs, 430 ft perf 6100 ft, sand 4365 ft, td 6103 ft.

Ventura County—Ventura Ave.: Shell's Taylor 150, 777 ft n 5035 ft w c/l No. 11, flow no est, perf 9057-8529, 8540-8339, 8225-7840 ft, td 9060 ft.

CALIFORNIA WILDCATS

Kern County—Failures: J. Paul Getty's Portals 2, se sw sw 5-30-29, Edison area, abnd 4263 ft.

Richfield Oil Corp.'s Tejon 4, sw nw ne 34-11-19, Grapevine-Tejon area, abnd 5180 ft.

Standard's 89-7 se se nw 7-30-22, McKittrick area, San Joaquin clay 1044 ft, Pectins Oweni 1567 ft, Etchegoin 1579 ft, abnd 5146 ft.

Kings County—Failure: Pacific Oil & Gas Development Corp.'s West Slope 2, sw nw ne 20-24-18, Pyramid Hills area, abnd 994 ft.

Santa Barbara County—Oil Discovery: O. C. Field Gasoline Corp.'s Arellanes 1-F, 13-9-35, Casmalia area, pump 150 bbls 8-gr, 400 ft perf 1897 ft, td 1898 ft.

Tulare County—Failure: Tide Water Associated's Corehole 54-34, sw sw ne 34-21-26, Portersville area abnd 2709 ft.

ILLINOIS

Clay County: Texas Co.'s Bloemker-Webster 3, nw ne sw 3-5n-7e, Weller 2495-2514 ft, 67 bbls, 2530 ft.

Clinton County: Ashbee Oil Co.'s Lampen 2, se nw nw 16-1n-2w, abnd 1267 ft.

Franklin County: E. S. Adkins' Boner 2, ne ne se 25-7s-2e, Tar Spgs 2054-83 ft, 108 bbls, 2100 ft.

E. S. Adkins' Peabody Coal So. 32, se sw sw 18-7s-3e, Tar Spgs 2050-89 ft, 126 bbls, 2089 ft.

E. S. Adkins' Peabody Coal Co. 45, sw se sw 18-7s-3e, abnd 2903 ft.

Gallatin County: Cherry & Kidd's Kerwin 22, nw ne nw 14-8s-10e, Tar Spgs 2029-46 ft, 30 bbls, 2054 ft.

Davies et al's Tate 1, c se ne 30-8s-10e, abnd 2944 ft.

Hamilton County: Texas Co.'s Drew Comm. 1, ne ne nw 20-4s-7e, Aux V 3255-77 ft, 183 bbls, 3277 ft.

Kingwood's Dodd 10, nw sw nw 6-6s-7e, Aux V 2992-3026 ft, 228 bbls, 3150 ft.

Jefferson County: Magnolia's Davis-Vallowe Unit 1, ne nw ne 18-3s-3e, abnd 2907 ft.

Marion County: H. Lilly et al's Burge 2, se ne nw 16-1n-1e, abnd 1685 ft.

Texas Co.'s Willis 1, ne ne sw 16-1n-2e, abnd 2140 ft.

Texas Co.'s Johnson 8, nw ne ne 16-2n-2e, sand 1871 ft, 84 bbls, 1893 ft.

Adams O&G Co.'s Cox 5-D, ne se 29-4n-1e, abnd 2912 ft.

Bryan & Wheelock's Nattier 7, sw se 29-4n-1e, Benoist 1423-42 ft, 30 bbls, 2969 ft.

Richland County: A. K. Livingston's Holtz 1, nw se 17-2n-14w, McCl lm 3137 ft, 45 bbls, 3197 ft.

Southwestern's City of Olney 1, se nw 34-4n-10e, abnd 3157 ft.

Wabash County: Superior's Wellman 4, ne se se 5-1s-12w, Biehl 1448-70 ft, 20 bbls, 2163 ft.

Texas Co.'s Geiger 1, nw se se 8-1s-12w, Weller 2000-09 ft, 40 bbls, 2011 ft.

Case Pomeroy's Hinderliter 1, se sw 2-1n-14w, abnd 2980 ft.

Seaboard's Gates 1, sw sw 2-1n-14w, abnd 2937 ft.

Hayes & Wolfe's Hinderliter 1, sw ne sw 4-1n-13w, Benoist 2506-25 ft, 75 bbls, 2775 ft.

C. U. Bay et al's Hershey 1, ne ne sw 9-1n-13w, abnd 2716 ft.

Magnolia's Neikirk-Hayes 1, sw sw sw 35-1n-13w, abnd 2712 ft.

John S. Dow's Gher 1, ne ne ne 13-1n-12w, Biehl 1442-72 and 1482-1500 ft, 65 bbls, 1503 ft.

Young and Illinky Oil Co.'s Courter 2, ne ne ne 26-1n-12w, abnd 1508 ft.

White County: W. C. McBride's Anna 1, ne se nw 6-4s-14w, Buchanan 1544-63 ft, 50 bbls, 2385 ft.

Phillips' Laura 1, sw sw 19-4s-11e, Benoist 2808-28 ft, 190 bbls, 3151 ft.

Eason Oil Co.'s Clark 2, nw se nw 30-4s-11e, Benoist 2808-21 ft, 119 bbls, 3116 ft.

Superior's Ford 25, sw ne sw 4-5s-14w, Cypress 2595-2606 ft, 50 bbls, 2875 ft.

Kingwood's Clow 3, ne ne nw 12-7s-8e, Walts 2180-93 ft, 15 bbls, 2193 ft.

W. C. McBride's Aud 1, sw ne se 3-7s-9e, Aux V sd 2928-37 ft, 20 bbls, 2950 ft.

Wayne County: Deep Rock's Iddings 1, nw ne 29-1s-7e, abnd 3273 ft.

H. H. Weinert's Grey 1, se sw sw 22-1s-8e, abnd 3262 ft.

Pure's Clutter Cons 2, nw nw sw 2-1n-7e, Aux V 2972-95 ft, 11 bbls, 2995 ft.

ILLINOIS OLD WELL DEEPENED

Effingham County: Faulkner's Reed 1, 7-8n-4e, otd 1530 ft, abnd 1537 ft.

Wells Completed in the United States in Week Ended August 28, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS: *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama	....	....	....	....	....	....	....	....	....	....	....	....	2	3
Arizona	....	....	....	....	....	....	....	....	....	....	....	....	....	2
Arkansas	1	....	....	1	2	....	....	....	1	1	3	8	144	147
California	23	2	....	2	27	1	1	....	5	6	34	34	1,028	486
Colorado	....	....	....	....	....	....	....	....	....	....	....	3	21	8
Florida	....	....	....	....	....	....	....	....	....	....	....	....	1	....
Georgia	....	....	....	....	....	....	....	....	....	....	....	....	1	2
Illinois	20	....	....	15	35	1	2	....	7	9	45	34	1,156	1,337
Indiana	1	....	....	3	4	....	....	....	2	2	6	4	166	257
Kansas	20	....	2	6	28	1	1	....	12	13	42	32	1,111	1,088
Kentucky	2	....	....	3	5	1	2	....	5	7	13	9	232	95
Louisiana	6	....	....	5	11	....	....	....	....	....	11	10	427	668
North Louisiana	2	....	....	....	2	....	....	....	....	....	2	5	192	....
South Louisiana	4	....	....	5	9	....	....	....	....	....	9	5	235	....
Michigan	8	3	....	4	15	....	....	....	5	5	20	13	368	460
Mississippi	1	....	....	....	1	....	....	....	1	1	2	....	36	76
Missouri	....	....	....	....	....	....	....	....	....	....	....	....	15	21
Montana	....	....	....	....	....	....	....	....	....	....	....	9	156	137
Nebraska	....	....	....	....	....	....	....	....	....	....	....	....	....	27
New Mexico	6	....	....	....	6	....	1	....	2	3	9	2	161	272
New York	12	....	12	....	24	....	....	....	....	....	24	24	788	817
Ohio	5	5	....	8	18	1	....	....	....	....	19	26	590	722
Oklahoma	17	4	1	11	33	5	1	....	7	8	46	36	894	989
Pennsylvania	33	4	17	1	55	....	....	....	....	....	55	59	1,808	2,685
Tennessee	....	....	....	....	....	....	....	....	....	....	....	....	5	8
Texas	37	1	2	19	59	....	....	....	19	19	78	97	2,693	3,936
E. T. Bor. Co's	....	....	....	....	....	....	....	....	....	....	....	....	15	....
East Texas Field	....	....	....	....	....	....	....	....	....	....	....	....	5	....
Rest of E. Texas	....	....	....	1	1	....	....	....	2	2	3	....	150	....
North Texas	6	....	2	9	17	....	....	....	6	6	23	....	657	....
W. Central Texas	2	1	....	3	6	....	....	....	3	3	9	....	249	....
West Texas	17	....	....	1	18	....	....	....	....	....	18	....	584	....
Texas Panhandle	4	....	....	1	5	....	....	....	....	....	5	....	136	....
G. Coast, Upper	1	....	....	1	2	....	....	....	4	4	6	....	213	....
G. Coast, Lower	6	....	....	3	9	....	....	....	2	2	11	....	400	....
Southwest Texas	1	....	....	....	1	....	....	....	2	2	3	....	246	....
S. Central Texas	....	....	....	....	....	....	....	....	....	....	....	....	38	....
West Virginia	3	16	....	3	22	1	....	....	....	....	23	19	417	490
Wyoming	....	....	....	....	....	....	....	....	....	....	....	8	85	58
Total U. S.	195	35	34	81	345	11	8	....	66	74	430	427	12,305	14,791

* Includes distillate wells † Includes salt water disposal wells.

ILLINOIS WILDCATS

Clinton County—Failure: Texas Co.'s Stokes 1, sw sw se 17-2n-1w, abnd 1699 ft.

Crawford County—Failure: Heath Oil Co.'s Heath 1, nw se se 15-6n-12w, abnd 1038 ft.

Edwards County—Discovery: Mabee's Cowling 1, sw ne sw 20-2s-14w, Aux V 3002-38 ft, 180 bbls, 3038 ft.

Ryan & Fortner's Rawlston 1, e½ sw se 9-1n-10e, McCl lm 3269-79 ft, 758 bbls, 3340 ft.

Putnam County—Failure: Fuller and Turner's McGiehy 1, c e½ e½ 3-31n-1w, abnd 2000 ft.

Richland County—Failure: J. Bauer et al's Warner 1, nw se ne 24-3n-11w, abnd 1898 ft.

Wayne County—Failure: Stanolind's Arnold 1, sw nw sw 23-1n-9e, abnd 2284 ft.

White County—Failure: Herndon Drilling Co.'s Brown 1, c s½ nw se 10-5s-10e, abnd 3160 ft.

Mabee's Anderson 1, sw sw se 8-6s-10e, abnd. 3293 ft.

INDIANA

Posey County: A. J. Walker's Seifert 1, nw nw nw 20-6s-12w, Walst 1852-66 ft, 25 bbls, 2362 ft.

Randolph County: John Seip's Butts 1, c ne 2-19n-14e, abnd 1175 ft.

John Seip's Hunt 1, sw sw 23-20n-14e, abnd 1160 ft.

John Seip's Keys 2, ne s 23-20n-14e, abnd 1170 ft.

INDIANA WILDCATS

Daviess County — Failure: Carl Michel's Himsel 1, sw se se 15-1n-6w, abnd 1091 ft.

Posey County—Failure: C. A. Baldwin's Reichart 1, nw se 25-7s-15w, abnd 2745 ft.

KANSAS

Barton County—Davidson: Lauck & Moncrief's Goodwin 1, c n½ nw nw 3-16s-11w, abnd 3387 ft.

Barton County—Feltes: Gulf's **Hofmeister 1,** c n½ nw nw¼ 24-16s-12w, swab 9 bbls, 3359 ft.

Barton County—Kraft-Prusa: Windler-Koch's Ehler Estate 1, c nw sw 12-17s-11w, abnd 3396 ft.

Barton County — Bloomer: Transwestern's Peterman 1, c ne sw 24-17s-11w, 1000 gals acid, 3640 bbls, 3295 ft.

Barton County — Silica: Magnolia's Roetzel 11, c n/2 ne se 25-20s-11w, abnd 3865 ft.

Butler County—Eldorado: Molk Petroleum Co.'s Mills 3A, ne sw nw 27-25s-5e, sand 2445 ft, 1000 gals acid, 15 bbls oil-water, 2490 ft.

Butler County — Haverhill: Cromwell & Lewis' Weaver 1, sw se nw 35-27s-5e, 1000 gals acid, 35 bbls, 3130 ft.

Cowley County—East Frog: B. B. Blair's Miller 1, ne sw nw¼ 14-32s-5e, shot 40 qts, 17s-4e, 100 bbls, 2365 ft.

Ellis County — Burnett: Phillips' Sites 1, near c s/2 s/2 12-11s-18w, input 3853 ft.

Ellis County—Ellis: Darby's Bittel 3, c w½ sw sw 31-12s-20w, 583 bbls, 3854 ft.

Ellis County—Herzog: Gulf's Brungardt 2, ne sw ne 31-13s-16w, 1200 gals acid, 155 bbls, 3476 ft.

Marion County—Lost Springs: Derby Oil Co. and E. K. Carey's Riffel 1, c w/2 sw sw 10-17s-4e, 100 bbls, 2365 ft.

McPherson County — Crowthers: Westgate-Greenland's Blaine 2, c s½ sw sw 23-17s-1w, 22 bbls, 2786 ft.

Pratt County—North Iuka: Shell's Petrowsky 2, near sw ne sw 17-26s-12w, 1800 gals acid, 37,233 bbls, 4319 ft.

Rice County—E. Orth: Phil-Han and Adair & Morton's Spotts 1, c w½ se se¼ 23-18s-10w, abnd 3295 ft.

Rice County—Doran: Atlantic's Doran 3, c nw se¼ 17-20s-9w, 500 gals acid, 845 bbls, 3283 ft.

Rice County — Keesling: Cities Service's Jones 4, sw sw ne¼ 17-20s-9w, 405 bbls, 3284 ft.

Rice County—Wenke: Beardmore's Duerle 2, sw ne se¼ 18-20s-10w, 1000 gals acid, 36 bbls, 3385 ft.

Russell County—Hall Gurney: Continental's Rein 5, c w½ ne nw¼ 27-14s-13w, abnd 3223 ft.

Russell County—Krug: Magnolia's Krug 2, c ne se¼ 8-14s-14w, 3000 gals acid, 174 bbls, 3060 ft.

Russell County—Hall Gurney: Gulf's Find 3, c ne se¼ 15-14s-14w, 5000 gals acid, 137 bbls, 3245 ft.

Russell County — Un-named: Harry Gore's Zemman 1, near c ne ne 16-15s-12w, 500 gals acid, 204 bbls, 3237 ft.

Russell County—Trapp: Coralena's W. H. Sellens 5, c s½ ne se¼ 19-15s-13w, 1000 gals acid, 170 bbls, 3009 ft.

Cities Service's Bender 1, nw ne ne¼ 26-15s-14w, Granite 3616 ft, water input, 3619 ft.

Sheridan County—Studley: Union's Pratt 3, nw nw se¼ 23-8s-26s, 5500 gals acid, 324 bbls, 3754 ft.

Stafford County: Stanolind's Frankenberg 1, se ne sw¼ 6-22s-12w, 500 gals acid, pump 80 bbls, 3660 ft.

Stafford County — Drach: Sinclair Prairie's Cora B. Crawford 1, 1000 gals acid, 2790 bbls oil, 310 wtr, 3670 ft.

Stanolind's Harms 6, c n½ sw nw¼ 18-22s-12w, input, 4400 ft.

KANSAS WELL DEEPENED

Rice County—Chase: Aylward's Malone 1, near c ne se 19-20s-9w, abnd 3377 ft.

KANSAS WILDCATS

Cowley County — Failure: Chas. Jenkins' Pickens 1, sec ne 20-34s-7e, Miss 2997 ft, abnd 3025 ft.

V. R. Wyatt et al's Craver 1, sec sw 32-34s-4e, abnd 3770 ft.

Ellsworth County—Failure: Vickers' Janssen 1, nec sw 36-17w-8w, Arb 3433 ft, abnd 3437 ft.

Graham County—Failure: W. C. Broderick's Benoit 1, sec nw 24-8s-22w, Arb 3675 ft, abnd 3748 ft.

Harvey County—Failure: Atlantic's Randall 1, c e/2 sw ne 23-22s-3w, Arb 3448 ft, abnd 3860 ft.

Leavenworth County—Gas Discovery: McLaughlin's Union Central 1, c ne ne 8-10s-21e, 10,000 gas, 1266½ ft.

Leavenworth County—Failure: Chas. Miller's Powell 1, nwc ne 31-9s-21e, abnd 1424 ft.

Marion County—Failure: Wolf Creek and Falcon Seaboard's Deuerkson 1, c w/2 ne ne 29-19s-1e, abnd 3366 ft.

McPherson County—Failure: J. H. Hershey's Jacobson 1, c w/2 nw se 12-17s-2w, Lans 2195 ft, abnd 2832 ft.

Helmerich & Payne's Neufeld 1, nwc se 18-21s-5w, Arb 3973 ft, abnd 4023 ft.

Russell County—Failure: Vernon O&G Co.'s Billings-Shaffer 1, nwc ne 18-14s-13w, abnd 3336 ft.

Cities Service's Witt 1, c se sw 1-14s-14w, abnd 3347 ft.

Saline County—Failure: Ingling & Parker et al's Reiff 1, c s/2 se se 10-15s-2w, abnd 2842 ft.

KENTUCKY

Daviess County: Miller & Schiarella's Short 1, 9-N-27, abnd 2211 ft.

J. C. Ellis' Fee 3, 15-N-29, Cyp 1428-55 ft, 20 bbls, 1892 ft.

South Penn's Howard 1, 21-O-31, abnd 1280 ft.

Hancock County: H. H. Vickers' Barker 1, 2-O-33, abnd 795 ft.

Union County: Sohio's Hancock 1, 9-O-20, McCl 2531-81 ft, 203 bbls, 2588 ft.

KENTUCKY WELL DEEPENED

Union County: Pure's Mason A-1, 6-O-19, otd 1532 ft, abnd 2789 ft.

KENTUCKY WILDCATS

Daviess County: Reilly & Barnett's Bosley 1, 15-P-28, abnd 1923 ft.

Grayson County: Forest James et al's Cerdes 1, 12-L-43, abnd 981 ft.

Henderson County: Sohio and Hupp's Ohio Valley Trust 1, 22-R-25, abnd 2242 ft.

McLean County: Vickers et al's Hudson 1, 24-M-29, Jett 1190-1205 ft, 300 bbls, 1205 ft.

Union County: Trans-Tex's T. N. Wheatley 1, 7-O-21, abnd 2771 ft.

Sinclair Prairie's Hunter 1, 23-P-18, abnd 2865 ft.

Webster County: So. Pet. Co.'s Sellers 1, 14-N-24, Tar Spgs 1872-92 ft, 165 bbls, 1892 ft.

NORTH LOUISIANA

Red River Parish—Red River-Bull Bayou: S. H. Lowery et al's Christopher A-1, sw sw 16-13n-10w, pump 10 bbls, 2548 ft.

Tensas Parish—Discovery: Carter Oil Co.'s R. D. Shelley 1, sw ne 19-11n-10e, elev 79, perf 8399-8410 ft, flow 387.75 bbls 37.5-gr, td 8444 ft.

SOUTH LOUISIANA

Beauregard Parish—Bear: Humble's Krause & Managan 1, ne se ne 28-6s-9w, abnd 6900 ft.

Beauregard Parish—Neale: Gulf's Edna Gibson 1, 1979.5 ft and 637.9 ft e of swc 25-3s-11w, perf 10,872-97 ft, flow 224 bbls, 3/16-in, td 11,368 ft.

Evangeline Parish — Pine Prairie: Gulf's Johnson-Schlicher-Thomas-Unit 1, 2828 ft w, 910.7 ft s nec 2-4s-1w, perf 7630-40 ft, flow 288 bbls, 5/32-in, 5½-in 7670 ft, td 7670 ft.

LaFourche Parish — Leeville: Texas Co.'s LLE-Leeville 90, 3708 ft s, 1668 w nec 27, in 34-21s-22e, abnd 8056 ft.

Plaquemines Parish—Quarantine Bay: Gulf's State-Quarantine Bay lse 195 QQ 34, 6075 ft e, 102 ft n nwc 7-19s-17e, in the bay, perf 9438-44 ft, flow 285 bbls, 9/64-in, tp 2000 lbs, csg sld, gravity 35.1, gor 1178-1 ft, 5½-in 9492 ft, td 9492 ft.

St. James Parish—Hester: Humble's Canal Bank 1-C, 11-12s-5e, junked 1738 ft.

St. Mary Parish—West Cote Blanche Bay: Texas Co.'s State-West Cote Blanche Bay 19, n 33 deg 22 min e 26,503 ft fr USCGS Mon "NED" in bay, T-15s-7e, perf 8574-92 ft, flow 261 bbls 33.9-gr, 10/64-in, td 8950 ft.

SOUTH LOUISIANA WILDCAT

Calcasieu Parish—Gum Cove Area: Union Sulphur's Stark & Brown 1, nw 24-11s-12w, abnd 9607 ft.

MICHIGAN

Allegan County — Fillmore: W. S. Cook's Dykhuis 1, nw nw sw 2-4n-15w, swab and flow 12 bbls, after acid, 1522 ft.

J. W. Lang's Dozeman 1, se sw ne 11-4n-15w, pump 55 bbls, 1560 ft.

Arenac County—North Adams: Smith Pet. Co.'s Stone 2, nw sw sw 14-19n-3e, flow 140 bbls, hr, est potential 6500 bbls, 2891 ft.

Bay County—Kawkawlin: Gulf's Ruegsegger 1, n½ nw se 3-14n-4e, pump 76 bbls, 2940 ft.

Clare County—North Hamilton: Sun's Huber 1, w½ nw sw 6-19n-3w, abnd 4116 ft.

Clare County — Cranberry Lake: Taggart Bros.' S11, c se 7-20n-5w, 3,100,000 gas, 1306 ft.

Taggart Bros.' S14, c se 2-20n-6w, 1,700,000 gas, 1349 ft.

Taggart Bros.' S15, c nw 2-20n-6w, 1,900,000 gas, 1320 ft.

Clinton County—Dallas: Jetter and DeKraft's Halfman 1, nw sw sw 22-7n-4w, abnd 2532 ft.

Gladwin County—Secord: John F. Burton's State 1, w½ sw se 12-19n-1e, abnd 3449 ft.

Missaukee County—Prosper: Cities Service's Apps 1, s½ se nw 26-22n-6w, flow 69 bbls, 5 hrs, 3898 ft.

Newaygo County — Woodville: Ohio's Gas Unit 5, c se 29-15n-11w, abnd 1188 ft.

Van Buren County—North Bangor: Fisher-McCall's Batka 2, ne se nw 9-2s-16w, pump and flow 75 bbls, 1015 ft.

Van Buren County—Bangor: T. C. Hudson's Jackson 4, nw se se 20-2s-16w, pump and flow 90 bbls, 1003 ft.

Van Buren County—New Geneva: Rex Oil & Gas Co.'s Johnson 1, ne ne ne 26-1s-16w, pump 60 bbls, 1080 ft.

MICHIGAN WILDCATS

Allegan County—Failures: S. L. Findley's Minegar 1, sw se se 24-3n-14w, abnd 1523 ft.

Miller Brothers' Hitzschke 1, se sw ne 16-2n-14w, abnd 1360 ft.

Kalkaska County—Failure: Ohio's Lawrence 1, e½ ne ne 12-28n-8w, Dundee lime 2062 ft, abnd 2215 ft.

Mason County—Failure: C. M. Russell, Tr.'s Anderson 1, n½ ne nw 16-19n-17w, Dundee 2100 ft, abnd 2884 ft.

Van Buren County—Failures: Central Development Co.'s Barker 1, sw sw nw 19-2s-16w, abnd 1041 ft.

Homrich & Kendall's Carroll 1, se se se 20-1s-15w, abnd 1143 ft.

Zones & Goffs' Kasler 1, c sw nw 14-1s-13w, Traverse 1408 ft, abnd 1456 ft.

MISSISSIPPI

Yazoo County—Pickens-Sharpsburg: Carter Oil Co.'s Bridgeforth 1, sw sw 33-12n-3e, flow 196 bbls, ¼-in, td 4822 ft.

MISSISSIPPI WILDCAT

Jefferson Davis County: Gulf's Blackmon 1, 25-7n-19w, abnd 2686 ft.

NEW MEXICO

Eddy County: Aston & Fair's Stevens 3-B, c sw se 26-17s-30e, flow 20 bbls, ¾-in, shot 100 qts 3206-88 ft, td 3296 ft.

John W. Fidel et al's Grier 2, c nw se 30-16s-31e, flow 100 bbls, 2-in, 3135-3203 ft.

Premier Oil Co.'s Parke 1-F, c ne sw 3-17s-30e, flow 29 bbls, 2-in, shot 90 qts 2842-70 and 40 qts 2954-70 ft, td 2994 ft.

Western Prod. Co.'s Keeley 8-C, c ne ne 25-17s-29e, flow 960 bbls 2½-in, 3027-20 ft.

Lea County—Maljamar: Barney Cockburn's State-Shell 2, c se sw 29-17s-33e, elev 4046 ft, flow 612 bbls, 2-in, shot 260 qts 4252-4312 ft, td 4319 ft, pb to 4312 ft.

Maljamar O&G Corp.'s Mitchell 17-B, c sw sw 17-17s-32e, flow 70 bbls cas, pay 3765-4068 ft, td 4074 ft, pb to 4068 ft.

NEW MEXICO WILDCATS

Eddy County—Oil Discovery: Robt. E. McKee et al's State 2, c se se 3-19s-29e, elev 3395 ft, salt 300-1020 ft, red sand 2170 ft, pump 20 bbls 37.6-gr oil, 15 water, shot 340 qts 2575-2690 ft, td 2815 ft, pb to 2710 ft.

Eddy County—Failure: Lelia C. Fulton et al's Page 1, c nw se 15-21s-28e, elev 3281 ft, salt 370-1500 ft, Delaware 2515 ft, abnd 2840 ft.

Guadalupe County—Failure: Flynn - Welch and Yates' Molse 1, c se nw 26-8n-23e, abnd in water sand 4421-25 ft.

OKLAHOMA

Bryan County: Pure's Williams 118 1, se ne sw¼ 21-5s-7e, sand 5932 ft, 595,656 gas, 6001 ft.

Carter County—Tussy: J. S. Batson's Dorothy 2, cen sw ne nw¼ 5-1s-3w, sand 2743-50 ft, abnd 3394 ft.

Comanche County — Ft. Sill: Texas Co.'s Cline 3, se ne ne¼ 8-3n-10w, 500,000 gas, 1189 ft.

Texas Co.'s Dillberg 1, se se nw¼ 5-3n-10w, abnd 1212 ft.

Creek County—Deep Fork: Sinclair Prairie's Watson A 6, ne sw se 16-14n-se, shot 80 qts, 60 bbls, 2453 ft.

Creek County — Sapulpa Dist.: Wright's Wright B 10, se nw sw 19-17n-11e, repressure 2439 ft.

Creek County—Glenn: Gulf's Barnes 23, se nw sw 8-17n-12e, shot 270 qts, 36 bbls oil, 9 water, 1641 ft.

Sinclair's Berryhill 58, near sw sw ne 16-17n-12e, 5 bbls, 1575 ft.

Creek County — Cushing: J. E. Crosbie's

Reed 1, se ne ne, 11-18n-7e, shot 40 qts, 20 bbls, 2906 ft.

Creek County—Bristow Dist.: Sand Spring Home's E. Johnson 1, c nw nw 14-17n-8e, lime 2575 ft, shot 80 qts, 63 bbls, 2633 ft.

Garfield County—Garber: Sinclair Prairie's Windler 12, near ne nw sw, 30-22n-3w, shot 40 qts, 17 bbls, 1685 ft.

Hughes County—Un-named: Deep Rock's Lankford 1, ne se ne 29-7n-10e, 350 bbls oil, 15 water, 3889 ft.

Lincoln County—Agra: Mid-Continent et al's Corbin 1, c nw nw 32-17n-5e, abnd 3533 ft.

Logan County—Crescent: Sunray's Wells 3, se nw nw 26-17n-4w, shot 20 qts, 92 bbls, 4988 ft.

Marshall County — Aylesworth: Atlantic's Neff-Godfrey 1, ne nw sw¼ 13-6s-6e, sand 3453 ft, abnd 3567 ft.

Marshall County—Isom Springs: Gill & Morse's Adams 6, near c sw ne ne 6-8s-6e, sd 521 ft, 30 bbls, 525 ft.

McIntosh County—Stidham: W. H. Pine's Dodd 1, se se se 26-11n-15e, 700,000 gas, 3541 ft.

Oklahoma County — Edmond: Magnolia's Ringer 1, c se se 31-14n-4w, pump 276 bbls, 7010 ft.

Denver P & R's Young 1, nw se nw 32-14n-4w, 10,000 gal acid, 300 bbls, 6936 ft.

Okmulgee County—Mounds: Klingersmith's Hotchkiss 1, c se 30-16n-12e, 2,800,000 gas, 2207 ft.

Osage County—Flat Rock: Northern Ordnance's 1, sw se sw 6-20n-12e, abnd 1801 ft.

Osage County—Osage City: Burch's Clayroy 1¼, near c sw sw se 36-22n-8e, shot 80 qts, 10 bbls, 538 ft.

Osage County—South Hominy: E. O. Platter's Osage 8, near c sw ne sw 30-22n-9e, sand 414 ft, 5 bbls, 445 ft.

Osage County—Barnsdall: Barnsdall's 4, se ne se 3-24n-11e, shot 100 qts, 18 bbls, 1743 ft.

Pottawatomie County—Narcomb: Stanolind, Amerada-Atlantic's Clour 1, c s½ sw 35-8n-3e, abnd 5234 ft.

Pottawatomie County—NW Earlsboro: Atlantic's Stargill 1, ne se se 1-9n-4e, 2500 gal acid, 225 bbls oil, 4206 ft.

Pottawatomie County—NE Shawnee: Atlantic et al's Washington 3, sw ne ne 19-11n-5e, flow 300 bbls, 4800 ft.

Seminole County—Sasakwa: Eason-Crisso's Bryant 4, se ne nw 7-6n-8e, abnd 1243 ft.

Seminole County—Cromwell: H. L. Berkey's Baker Comm. 1, se ne ne 29-11n-8e, abnd 3530 ft.

Stephens County — Velma: Skelly's Stiefel near c ne nw 35-1s-5w, abnd 956 ft.

Stephens County—Loco: C. E. Beavers' Lowrey 1, sw se se¼ 8-3s-5w, abnd 1301 ft.

Cart Carter's Woodworth 1, se se se¼ 11-3s-5w, pump 12½ bbls, 1019 ft.

Tulsa County—Red Fork: E. E. Moray's Tully 4, c nw nw 22-19n-12e, abnd 2365 ft.

OKLAHOMA WELLS DEEPENED

Creek County: Oratorn's Franklin 2, ne nw ne¼ 30-22n-3w, abnd 2941 ft.

Okmulgee County—Tiger Flats: Thompson et al's Bank 1A nw ne ne 14-12n-12e, abnd 2560 ft.

Osage County—Nelagony: Four States' 4, ne sw sw 13-25n-10e, 2000 gals acid, 50 bbls, 1505 ft.

Payne County—North Coyle: Phillips' Lace 1, c ne ne¼ 36-18n-1e, abnd 4754 ft.

Seminole County—Wewoka: Sinclair Prairie's Jennings 1, c se se 8-8n-8e, 1000 gals acid, 20 bbls oil, 75 water, 4205 ft.

OKLAHOMA WILDCATS

Bryant County—Failure: Amerada's Neff-Godfrey 1, se nw sw 22-6s-7e, Oil Creek 6200 ft, abnd 6282 ft.

Kay County—Failure: Phillips' Cather 1, se sw ne 24-27n-2w, Arb 4250 ft, Wx 4079 ft, abnd 4331 ft.

Lincoln County—Failure: H. Hollenbeck's Singleton 1, se se sw 7-12n-3e, rig abnd.

Noble County—Failure: K. A. Ellison's Eyler 1, se ne sw 10-21n-2e, abnd 3012 ft.

Pawnee County—Failure: E. S. Adkins' Kelley 1, nw nw se 7-20n-5e, Wilcox 3957 ft, abnd 3997 ft.

Payne County—Failure: Fidelity Royalty Co.'s Goss 1, se sw sw 7-18n-5e, abnd 2907 ft.

Seminole County — Gas Discovery: Shell's Buck 1, nw ne nw 21-10n-7e, perf 3710 ft, 1750 gas, td 4603 ft.

EAST TEXAS

Houston County — Grapeland: Geier Bros.-Sunray and H. H. Wegener's Spence 1, 1100 ft from sw and 4616 ft from nw lines J. de J. Procella leag, elev 445 ft, Pecan 4638-5077 ft, Austin 5670-5974 ft, Woodbine 6097 ft, abnd 6147 ft.

EAST TEXAS WILDCATS

Rusk County—Failure: C. C. Thrasher et al's Moore 1, 700 ft out sec 217-ac lse, Henry Stockman sur, elev 447 ft, abnd Woodbine water sand, td 4039 ft.

Van Zandt County—Failure: Roger Lacy et al's Paul 1, 731 ft nsl and 1300 ft ewl Jas. Chesshire sur, elev 496 ft, Pecan 2377-2580 ft, Austin 3535-3928 ft, Sub-Clarksville 3980-4000 ft, Woodbine 4425 ft, Georgetown 5185 ft, Ft. Worth 5860 ft, Goodland 6315-90 ft, Paluxy series 6390 ft, sand 6430 ft, abnd 6512 ft.

NORTH TEXAS

Archer County: Akin-Dimock et al's Wilson 3, 150 ft nsl and 440 ft ewl ATNC 121, abnd 632 ft.

Belfort Oil Co.'s Martin 2, 700 ft wel and 233 ft nsl of 320-ac tr, H. Grooms sur, A 155, abnd 1110 ft.

Henry Grace Prod. Co.'s Henry 2, 800 ft snl and 1450 ft wel sec 35, blk 5, Clark-Plumb sur, abnd 1131 ft.

White & Duncan's Bloodworth 1, 1620 ft snl and 300 ft ewl BBB&C 12, abnd 1240 ft.

W. C. Young-Burk Royalty Co.'s Richardson 1-A, 235 ft out sec sec 1, Meade Pasture sur, abnd 1207 ft.

Clay County: Johnson & Gorman's Cheeves 1, 699 ft wel and 2200 ft nsl blk 55, Bacon subdiv, pump 38 bbls, sand 1140-48 ft.

A. C. Parks et al's Boddy 8, 470 ft from nw and 450 ft from sw lines blk 46, Bacon subdiv, pump 4 bbls, 1323-28 ft.

Perkins & Cullum's Taylor 9-B, 1050 ft from ne and 2050 ft from se lines blk 42, Bacon subdiv, abnd 1280 ft.

Sussex Oil Corp.'s Glasgow 31, blk 34, Bacon subdiv, abnd 1880 ft.

Texas Co.'s Saner 5, lot 4, Saner & Lomax subdiv, GC&SF sur, pump 24 bbls, 1082-88 ft.

Cooke County: Texas Co.'s Trubenback 30, 646 ft wel and 935 ft nsl blk 4, J. Clark sur, pump 35 bbls, 784-809 ft.

Jack County: Chas. Kadane et al's Carter-Shell 11, 1150 ft wel and 925 ft nsl TE&L 3312, pump 5 bbls, 270-279 ft.

Wichita County: S. H. Walton et al's Gulf Pipe Line 24, 900 ft out nec e-70-ac of 125.3-ac tr, H&GN 23 and 24, abnd 1670 ft.

Wilbarger County: Baker & Hapgood's Waggoner-Sundown 1, 270 ft ewl and 1914 ft snl H&TC 7, blk 4, abnd 2424 ft.

Young County: Belfort Oil Co.'s Holcomb 1-A, 330 ft from nw and 660 ft from sw lines J. H. Hargraves sur, A 1871, pump 30 bbls, shot 20 qts 3792-3810 ft.

R. V. Tidwell et al's Harty 1, 660 ft out swc M. Edmonds sur, A 91, Bend 3497 ft, abnd 4004 ft.

NORTH TEXAS REPRESSURE WELLS

Archer County: Fresno Oil Co.'s Prideaux 52-W, 1544 ft snl and 1837 ft ewl of 284-ac lse, A. Rohus sur, water injection sands 603-06 and 642-50 ft.

Clay County: Norwood & Golden's Dallas Joint Bank 7, 2100 ft snl and 2450 ft wel lot

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■ Drilling rigs for sale for cash; or on acceptable terms of credit.

1—Wilson Giant Diesel Rig, with two 225 HP Cummings Diesel Motors, compounded; 14" x 7¼" x 14" Gardner-Denver pump; heavy derrick and heavy equipment entirely suitable for 5500-foot drilling; with or without drill pipe.

1—Diesel Rig, with two 225 HP Cummings Diesel Motors, compounded; 8" Emsco H-46 unitized draw works, with roller bearing drum shaft; 14" x 7½" x 14" new Gumbo Buster pump, made part of one well only; heavy duty OCS clutch; heavy derrick, and everything else about the rig suitable for drilling to 7500 feet; with or without drill pipe.

1—Steam Rig, less drill pipe, with
- 3—125 HP 300-lb. WP Kewanee boilers.
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- 1—12" x 12" Gumbo Buster roller bearing, fully enclosed engine.
- 1—25½" Gumbo Buster, fully enclosed oil bath rotary table.
- 1—9" Acme Unitized Draw Works.

Other items are generally complete, but there may be a few items short.

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WANTED TO BUY

■ WANTED:
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We are interested in new or used equipment. Do not offer used equipment unless in perfect operating condition. Quote condition and price. Danciger Oil & Refining Company, Fort Worth, Texas, LD 142, G. B. Magruder, Jr.

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NOTICES

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13, Thornberry subdiv, gas injection, sand 1132-44 ft.

Wichita County: Hanlon & Buchanan's Burnett 18-AAA, 1786 ft ewl and 3050 ft nsl H&GN 34, gas injection, sand 869-71 ft, td 874 ft.

NORTH TEXAS WILDCATS

Archer County—Failures: Chapman-McFarlin's Turbeville 1, 495 ft snl and 2243 ft ewl sec 182, T. P. Glass sur, Bend 4954 ft, Ellenburger 5395 ft, abnd 5500 ft.

Tom B. Medders et al's Fuller 1, 660 ft out nec sw H&TC 12, blk 1, KMA lime 4024 ft, Bend 5206 ft, Ellenburger 5440 ft, abnd 5507 ft.

Clay County—Failure: Fortex Oil Corp.'s Myers 1, 1085 ft from ne and 600 ft from se lines blk 49, E. Story sur, abnd 1165 ft.

Wilbarger County—Failures: Humble's Schmoker 1, c sw nw H&TC 114, blk 14, Ellenburger 6430 ft, abnd 6450 ft.

Jack Story, Jr. et al's Waggoner Est. 1, 1120 ft snl and 2505 ft wel H&TC 39, blk 4, abnd 1932 ft.

Young County—Failures: Sinclair Prairie's Ernest 1, 2919 ft n and 660 ft w of swc Wm. Tryndale sur, but in F. Peterswick sur, Mississippian 4821 ft, abnd 5250 ft.

Standard of Texas - Hanlon & Buchanan's Wells 1, 495 ft snl and 1400 ft ewl TE&L 738, Capps lime 2548 ft, Bend 3865 ft, Mississipian 4662 ft, abnd 4851 ft.

Denton County—Failure: F. B. Vonder Hoya and C. H. Gannon's Aetna Life 1, 1447 ft snl and 495 ft wel J. Haynes sur, otd 2352 ft, Bend 2045 ft, Ellenburger 2430 ft, abnd 2492 ft.

TEXAS PANHANDLE

Gray County: Magnolia's Fee-Darsey 1, c nw nw ACH&B 26, blk 1, elev 3032 ft, pump 357 bbls 41-gr, shot 360 qts 2904-74 ft, td 2983 ft.

Phillips' Clay 4, H&GN 177, blk B-2, pump 33 bbls oil, 15 water, lime 3075-3100 ft, td 3264 ft, pb to 3261 ft.

Hutchinson County: Dolomite Prod. Co.'s Perkins 10, sec 25, Jas. McDaniel sur, pump 48 bbls, shot 285 qts 3028-3118 ft.

Sinclair Prairie's Weatherly 18, A&B 23, blk Y, pump 131 bbls, shot 115 qts 3083-3109 ft.

Wheeler County: Phillips' O'Gorman-Dunker 1, c ne nw H&GN 84, blk 17, abnd 2190 ft.

WEST TEXAS

Andrews County—Fullerton: Fullerton Oil Co.'s Wilson 5-A, c se se PSL 16, blk A-32, flow 950 bbls, 28/64-in, acid 10,000 gals Clear Fork 6747-7250 ft.

Cochran County — Dean: Stanolind et al's Dean Unit 5-A, 660 ft out swc lab 24, leag 92, Lipscomb CSL, flow 240 bbls, 24/64-in, acid 12,000 gals 4972-5048 ft.

Cochran County—Slaughter: A. A. A. Oil Corp.'s Boyd-Texaco 1, 3794 ft nsl and 1996 ft wel leag 53, Oldham CSL, pump 331 bbls, acid 14,000 gals 5025-44 ft.

Continental's Dean 15, 3347 ft wel and 3253 ft nsl leag 58, Martin CSL, flow 1056 bbls, 3-in, acid 12,000 gals 4940-90 ft.

Jerry Hawkins et al's Mallet 69-A, 580 ft out swc lab 6, leag 47, Edwards CSL, flow 511 bbls, 2-in, acid 14,000 gals 4875-4955 ft.

Texas Co.'s Mallet 10-F, 580 ft out sec lab 15, leag 51, Scurry CSL, flow 933 bbls, cas, acid 10,000 gals, td 5050 ft.

Crockett County — World-Powell: Peck & Hall's Powell 1-B, 330 ft snl and 409 ft wel sec 56, blk BB, J. Banta sur, pump 171 bbls, acid 500 gals, 2602-08 ft.

Ector County—Foster: Richmond Drlg. Co.'s Johnson 3, 2500 ft ewl and 1500 ft snl T&P 32, blk 42, T-2-S, pump 290 bbls, shot 400 qts 4418-4520 ft, td 4525 ft.

Ector County—North Cowden: Stanolind's Midland Farms 7-D, 2093 ft s and 207 ft w of nwc T&P 44, blk 42, but in W. L. Callihan sur, flow 655 bbls, 2-in, shot 460 qts 4640-4795 ft, td 4808 ft.

Hockley County — Slaughter: Eugene Constantin et al's Elliott 2-B, 440 ft out sec lab 6, leag 42, Rains CSL, flow 640 bbls, 2½-in, acid 6000 gals 4858-96 ft.

T. F. Morrow et al's Mallet 32, 580 ft out nwc lab 12, leag 48, Edwards CSL, flow 407 bbls, 2-in, acid 12,000 gals 4925-65 ft.

Howard County—Iatam-East Howard: Stanolind's Echols 1, se ne ne T&P 6, blk 30, T-1-S, jkd 1105 ft.

Pecos County—Apco: C. U. Bay et al's Shearer-Humble 2, 880 ft from ne and 660 ft from se lines H&GN 99, blk 10, elev 2432 ft, Ellenburger 4580 ft, chert 4680 ft, flow 362 bbls, ¾-in, perf 4613-86 ft, td 4688 ft.

Pecos County — White-Baker: McElroy Ranch Co.'s (was Cheyenne) White-Baker 3-A, 2571 ft snl and 330 ft ewl GC&SF 87, blk 194, flow 28 bbls, 36/64-in, shot 60 qts 2025-64 ft.

Scurry County—Sharon: R. J. Byrd et al's Sterling 1, sw sw sw H&TC 140, blk 97, pump 178 bbls, shot 470 qts 2345-2443 ft.

Ward County—Shipley: Magnolia's Hayzlett 1, c n¼ of n¼ H&TC 3, blk 5, pump 77 bbls, shot 55 qts 2440-53 ft, td 2484 ft.

Winkler County—Emperor: Skelly's Halley 59, ne sw ne PSL 13, blk B-12, flow 839 bbls, ¾-in, shot 290 qts 2722-2878 ft.

Yoakum County—Wasson: Tide Water Associated's Waples-Platter 1, 510 ft ewl and 660 ft nsl se¼ sec 615, flow 119 bbls, 2-in, acid 10,500 gals 5250-5317 ft.

WEST CENTRAL TEXAS

Brown County: W. D. Austin et al's Williams 2, se sw se HT&B 40, 10,000,000 gas, sand 1355-75 ft.

Comanche County: J. C. Hamer et al's Smith 6, 1920 ft nsl and 200 ft wel BBB&C 31, abnd 743 ft.

Jones County — Avoca: Fain-McGaha and Sinclair Prairie's Lyckman 5, nw nw nw BBB&C 190, abnd 3274 ft.

Jones County—Wimberly: Butler-Horne Co.'s Wimberly 4, 1150 ft ewl and 3425 ft snl of G. Martinez sur 137, flow 264 bbls, 5/16-in, Flippen sand 2225-34 ft.

Palo Pinto County: Albert Adkisson et al's Allen-Ritchie 9, 2500 ft from ne and 1000 ft from nw lines L. J. Pitts sur, A1289, pump 6 bbls oil, 15 bbls water, 1509-11 ft.

T. P. Coal & Oil Co.'s Fee-Ryan 4, 6860 ft snl and 2277 ft ewl Isaac Ryan sur, A 388, abnd 3280 ft.

WEST CENTRAL TEXAS WILDCATS

Coleman County—Failure: Hunter & Hunter's Griffin 2, 660 ft nsl and 4620 ft ewl Hood CSL sur A-1331, elev 1946 ft, top Saddle Creek 1810 ft, Adams Branch 2620 ft, junked 3258 ft.

Jones County—Failure: Hunter & Hunter's Fields 1, c sw nw T&P 48, blk 15, elev 1698 ft, Dothan 1600 ft, Noodle 1700 ft, Flippen 1988 ft, Palo Pinto 3544 ft, Bend 4796 ft, Ellenburger 5080 ft, abnd 5265 ft.

Lampasas County—Failure: H. C. Bishop et al's Baker 1, 1500 ft ewl and 1250 ft snl W. H. Butler sur, abnd 1135 ft.

LOWER TEXAS COAST

Jackson County — West Mauritz: Louis Crouch et al's Lunday 2, A. Kountze sur 15, 5½-in 5490 ft, sand 5480 ft, perf 5480-84 ft, flow 128 bbls, ½-in, td 5505 ft.

Jackson County—West Ranch: Magnolia's West Ranch 250-A, 7-in 5596 ft, sand 5585 ft, perf 5587-95 ft, flow 166 bbls, 9/64-in, td 5569 ft.

Jackson County—North LaWard: Stewarts & Edwards Drilling Co.'s August Oehl 1, Lot F Forsters replat of Pickering Rch, abnd 6307 ft.

Jackson County—Collier: Texas Co.'s Boling-Collier Unit 3, Jas. Kerr, abnd 3110 ft.

Jim Hogg County—East: Sun's T. T. East 7-A, Domingo De Arriba gr, 5½-in 4739 ft, sand 4730 ft, perf 4737-38 ft, flow 94.77 bbls, 9/64-in choke, td 4739 ft.

Jim Wells County—Gallagher: M. M. Miller & Sons' W. T. Machen Estate 2, 500 ft fr s/l & 650 ft fr n/l of blk 60, J. B. Dibbrell sbd of Wade Ranch, abnd 5258 ft.

Nueces County—Robstown: Sam E. Wilson, Jr.'s E. W. Naumann 1, lot 15, Map D, Geo. Paul subdn M. L. deHerrera gr, 5½-in 5272 ft, perf 5195¼-5200 ft, 102.12 bbls, ½-in, td 5740 ft.

LOWER TEXAS COAST WILDCATS

Jackson County: Renwar Oil Corp.'s D. A. Lansdowne 1, 330 ft fr n & e/l 100-ac lse in Wm. Menefee sur, abnd td 6860 ft.

Jim Wells County: Stanolind's Dora Lee Blake 1, Santos Moreno "La Trinidad" grant, 3½ mi s Ben Bolt field, abnd 6276 ft.

SOUTHWEST TEXAS

Starr County—Rincon: T. B. Slick's 8-E, 2315 ft fr n, 2301 ft fr w/l of CCSD&RGNG 537, perf 3585-3603, flow 171 bbls, 3/16-in, td 3647 ft.

SOUTHWEST TEXAS WILDCATS

Starr County: Erasmo Gonzales et al's Jose 1, Antonio Guajardo grant, 22 mi n Roma, abnd 1756 ft.

McMullen County: Quintana's South Texas Syndicate 6-C, Wm. Dougherty sur 1, A 344, 14 mi sse Fowlerton, abnd 7200 ft in Wilcox. Completed as water well.

TEXAS GULF COAST

Harris County—Pierce Junction: Rio Bravo's Fee 10, 90 ft fr e/l & 312 ft fr s/l of 66-ac lse, 225 ft s and w of No. 3, otd 4635 ft. Pump 328 bbls 26.7-gr, 30% wtr, td 4337 ft.

Montgomery County—West Conroe: Gar-Flo Oil Co.'s Calfee & Longmire 1, 2600 ft sw of Housh & Thompson Clary est 1, abnd 4800 ft.

TEXAS GULF COAST WILDCATS

Fort Bend County—Needville Area: J. K. Dorrance and Wynn Crosby's Pure 1, ½ mi w Needville, on 80.22-ac tr, H&TC sur (F. Kageller) A 477, abnd 4800 ft.

Goldston's J. J. Hurta 1, 66 ft fr nw, 357 ft fr ne/l of ne 100-ac of Frank Hurta 400-ac tr, Robt. Hodge sur, A 33, abnd 6767 ft.

Fort Bend County — Sugarland N. Flank: Humble's Sugarland Industries 1-C, 1082.40-ac tr, Wm. Stafford & L. Alcorn surs, abnd 7488 ft.

Fort Bend County—Boling: Grubb & Hawkins' Moore 1, C. A. Betner sur, A 11 fr s cor, abnd 4950 ft.

Montana Oil Directory

Montana School of Mines and the State Bureau of Mines and Geology, Butte, Montana, has announced that the new Oil Directory, No. 22, Directory of Montana Oil and Gas Industry, is now ready for distribution, at $1.00 per copy.

United States Wildcat Starts

ARKANSAS

Cleveland County: Lion's Reap 1, sw se ne 25-11s-9w, lcn.

Calhoun County: Lion's Zimmerman 1, sw se sw 2-13s-16w, dr 340 ft.

Hunt Oil Co.'s L. Meyers et al 1, se se ne 3-19s-1w, ru.

CALIFORNIA

Fresno County: Amerada's California Lands 65-15, 15-17-18, Lenare area, cellar.

Kern County: Chanslor Canfield Midway Oil Co.'s 12-7, ne ne nw 7-32-23, Fellows area, lcn.

Chanslor Canfield Midway Oil Co.'s G-1, nw sw se 20-31-22, Midway area, lcn.

Standard's 32-5, nw nw se 5-28-27, Poso Creek area, lcn.

Standard's 6-21, nw ne nw 21-28-27, Poso Creek area, lcn.

Trico Oil & Gas Co.'s Workman 1, sw se sw 5-28-29, Round Mountain area, rig.

Yolo County: Empire Oil & Gas Corp.'s Porterfield 1, Arnold & Gilligs subdiv Rancho Canada de Capay, Capay area, lcn.

FLORIDA

Osceola County: Hunt Oil Co.'s Consolidated Naval Stores 2, sw sw 15-27s-33e, woc.

Levy County: Thompson-Pollard's Levy-Lerron 1, se se 16-13s-16e, lcn.

ILLINOIS

Clay County: H. S. Williams' McGee 1, nw nw se 22-5n-5e, dr.

E. A. Oberling et al's McGhee 1, ne ne sw 30-5n-7e, dr.

Clinton County: Conrey & Rea's Brandt 1, nw ne sw 11-3n-3w, dr.

Cumberland County: F. D. Walker's Shields 1, se se se 21-10n-8e, lcn.

Effingham County: C. E. Stout et al's Hooker 1, sw nw 16-6n-6e, lcn.

Hamilton County: Lomenilo & Williams' Biggerstaff 1, ne se nw 14-5s-7e, lcn.

White County: Skelly's Ramming 1, sw sw ne 24-5s-10e, lcn.

INDIANA

Posey County: A. C. Thomas et al's Bailey 1, c sw se 28-4s-13w, lcn.

KANSAS

Barber County: Auto Ordnance and Phillips' National Gypsum Co. 1, swc nw 10-31s-15w, rur.

Barton County: Continental's Stoskopf 1-A, sec nw 22-16s-13w, dk.

Lindas & Weimer's Hammeke 1, sec sw 12-19s-12w, lcn.

Gove County: Barnsdall's Inloes 1, se ne nw 11-11s-26w, dk.

Jefferson County: McLaughlin's Moon 1, c sw sw 21-10s-18e, rum.

Marion County: Veeder Supply Co. and Hershey's Hitt 1, c s½ nw nw 13-19s-3e, spd.

McPherson County: Frank A. Shaeffer's Samuelson 1, se ne se 10-18s-2w, dr 973 ft.

Rice County: Texon's Millard 1, se sw se 10-20s-7w, dr.

Rooks County: National Assoc. Petroleum Co.'s Riley 1, se ne ne 16-6s-17w, dr 990 ft.

Cooperative and T. H. Allan's Kelly 1, c nw nw 35-7s-17w, mim.

Russell County: Gough Davis' Funk 1, nw ne nw 26-12s-14w, rig.

Stafford County: W. N. Bartlett's Kisner 1, c e½ se ne 3-22s-13w, lcn.

Continental's Kirkpatrick 1, ne sw nw 31-24s-12w, dk.

KENTUCKY

Henderson County: Kingwood et al's Deacen 1, 16-Q-20, lcn.

Cherry & Kidd and Ashland's Overton 1, 1-Q-23, lcn.

Slagter et al's Conley 1, 20-Q-25, lcn.

McLean County: Sohio's Cox 1, 17-M-30, lcn.

Webster County: W. R. White's Clarce 1, 23-M-21, lcn.

J. H. Vandebark's Poole Comm 1, 15-N-24, lcn.

MICHIGAN

Antrim County: Ohio's Chamberlin 1, s½ sw ne 14-31n-8w, rig.

Allegan County: Miller Bros.' Vahue 1, ne ne se 8-2n-13w, rig.

Gladwin County: C. W. Teater's Fettig 1, w½ sw sw 10-20n-1e, dr.

Mecosta County: Southwest Dev. Co.'s Hewlett 1, ne ne nw 26-14n-7w, lcn.

Osceola County: Sun's Richardson 3, s½ nw se 15-18n-9w, rig.

MISSISSIPPI

Yazoo County: Northern Ordnance's Reed 1, ne ne 18-12n-3w, lcn.

NEW MEXICO

Chaves County: Humble's State 1-N, c se sw 35-14s-17e, lcn 7500-ft test.

Lea County: Tevis S. Morrow et al's State 1, c nw nw 22-15s-35e, lcn 5200-ft test.

OKLAHOMA

Grady County: Jordan Petroleum Co.'s Pursley 1, se sw sw 17-4n-6w, dk.

Hughes County: Shell's Meadors A-1, sw se nw 20-9n-9e, dr 1877 ft.

McIntosh County: W. H. Pine's Lynn 1, se sw sw 35-11n-15e, dr 341 ft.

Muskogee County: W. B. Pine Est's Lacy-Steel 1, se ne nw (owdd) co 1720 ft.

Pawnee County: E. S. Adkins' Glenn 1, ne sw sw 14-22n-5e, rur.

Phillips' Robe 1, ne ne nw 26-23n-5e, dr 2045 ft.

Payne County: Mid-Continent's Jones 1, sw ne ne 12-18-1e, dk.

NORTH TEXAS

Archer County: J. R. Craig et al's Joe Pevy 1, 1000 ft ewl and 200 ft nsl of 160-ac lse, and C. K. Simmons sur, A 391, lcn 1200-ft test.

Haskell County: Humble's Wiltbanks 1, 846 ft s and 395 ft w of nwc H&TC 5, blk 14, but in Georgetown Ry 1, A 646, lcn 6500-ft test.

Montague County: Gulf's Haggard 1, 467 ft wel and 1607 ft snl TE&L 2863, lcn 6000-ft test.

Wilbarger County: Whitaker Oil Co.-S. D. Johnson's Keith 1, 330 ft out nec H&TC 9, blk 12, lcn 5600-ft test.

Young County: Alford Oil Co.'s W. E. Edwards 1, 287 ft snl and 200 ft wel of s-162 ac TE&L 1481, lcn 900-ft test.

EAST TEXAS

Rains County: Humble's Manard 1, 660 ft s and 660 ft w of sec G. W. Luckett 162-ac tr in G. E. Beard sur, 7½ mi sw Emory, mim 7500-ft test.

Wood County: Falcon Co.-Roy D. Golston-W. J. Collins' J. W. Riley 1, 467 ft out nec 69½-ac lse, M. J. Nunez sur, 4 mi se Alba, lcn 6500-ft Paluxy test.

F. R. Jackson-R. L. Fisher and Bert Fields' McCarley 1-a, 330 ft out nwc 150-ac tr, H. Anderson sur, A 9, twin to 7506-ft jkd test, rur Woodbine test.

Bowie County: Permac Oil Co.'s E. A. Tidwell 1, J. W. Weaver sur, dr.

LOWER TEXAS GULF COAST

Bee County: Texas Co.'s Bolland Bros. 1, 2 mi nw Clareville, on 268-3-ac tr, BS&F 1, mim.

Jim Hogg County: Texas Co.'s Louis Armstrong 1, 3 mi sw Yaeger field, along sw trend of structure, 1759-ac lse, 7¼ mi sw Hebbronville, lcn 5000-ft test.

Jim Wells County: Texas Co.'s H. C. de Tijerina 2, 1½ mi se Seeligson field, lcn 7000-ft test.

Refugio County: Southern Minerals' Power 1, 4½ mi ne Greta field, 3 mi ne Vidaurri, lcn 7500-ft test.

Victoria County: Superior's Joe Sklar 1, 2 mi sw Placedo, and sw of Placedo field, lcn 7500-ft test.

SOUTHWEST TEXAS

Zapata County: Texas Co.'s Bert Hartman 4, 5 mi w Guerra and 3½ mi sw Colorado field, rig for 3000-ft test.

TEXAS GULF COAST

Brazoria County: Texas Co.'s C. G. Hamill 2, 9 mi s Sargent, lcn 9000-ft test.

Chambers County: Standard of Texas' State of Texas 1, 640-ac tr, 1½ mi offshore at Smith point, lcn.

Colorado County: Jack W. Frabier, Cities Service and John Mayo's C. K. Gay et al Unit 1, 3 mi nw Columbus, James Tumlinson lge, lcn 8200-ft test.

Sinclair Prairie's A. J. Thompson 1, 9 mi ne Columbus, 648.19-ac tr in Chas. Fritsche sur, lcn 10,200-ft test.

Wharton County: Humble's Donald and B. F. Duncan 1-B, 3000-ac tr, Alex Edgar sur, A 93, lcn 8000-ft test.

Tyler County: Humble's C. E. Goolsbee 1-B, 3 mi nw Warren, spudded.

WEST TEXAS

Cochran County: Seaboard Oil Co.-T.P. Coal & Oil Co.s Evans 1, c se se PSL 15, blk Y, lcn 5500-ft test.

WEST CENTRAL TEXAS

Brown County: Julian E. Simon et al's T. W. Stell 1, 1285 ft wel and 380 ft nsl of n-80 ac of se BBB&C 32, dr 355 ft.

Coleman County: Hunter & Hunter's Dorothy Griffin 2-A, 550 ft nsl and 4620 ft ewl Hood CSL sur, lcn.

Shackelford County: Harry Hines et al's Dawson-Conway 1, 330 ft out nwc w-80 ac ET 194, lcn 2000-ft test.

Taylor County: F. Craig Morton et al's C. M. Caldwell 1, 330 ft ewl and 350 ft snl of w-170-ac tr, T&P 83, blk 14, lcn 2100-ft test.

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STANDCO BRAKE LINING
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Squeaks from the Bull Wheel

Fatal Intimations

Passing along a street in Rome just before his fall, Mussolini was receiving with dour expression the applause of a small but voluble company of spectators who had been handpicked to cheer him on his way.

"Is it not wonderful the way the people cheer you?" remarked one of the Duce's stooges.

"Yes," replied the Duce moodily.

"Do you not thrill at their loyalty and affection?"

"Yes, yes," agreed Mussolini, "but what about that little boy on the last corner?"

"The little boy?"

"Yes," moaned Il Duce, "what do you suppose he was laughing at?"

Signs

"Do you suppose it's bad luck for a cat to follow you?"

"It all depends; are you a man or a mouse?"

Not Altogether

Then there was the young lady about to go on the witness stand. "Must I bare everything?" she asked.

"No, no," said her counsel. "Merely cross your legs."

Do You Remember Salesmen?

Reporter: "Well, boss, I've got a perfect news story."

Boss: "The man bit the dog?"

Reporter: "Naw, the bull threw the salesman."

All Off

I thought you said she doted on you? She did. Her father was the antidote.

His Money's Worth

"Waiter, I know meat is scarce but don't you think this steak is ridiculously small?"

"Yes, but it will take you a good while to get through it."

Checking Up

"Do you think you'd care as much for me if Dad lost his money?"

"Has he?"

"Why, no!"

"Of course I would, dear."

Quick Thinking

"What are you doing with those towels in your suitcase?"

"Oh, they are some I used the last time I was on this train. I had them washed and brought them back."

Coming Through

"Papa, are you growing taller all the time?"

"No, my child. Why do you ask?"

"'Cause the top of your head is poking up through your hair."

Team Work

"Where's your brother, Freddie?"

"Aw, he's in the house playing a duet. I finished my part first."

Tuesday or Saturday?

"At what hour did you hear the pistol shot last night?"

"It was either during the Pepsodent or Lucky Strike hour. I forgot which."

Times Change

"Ah, the air up in these mountains is great, isn't it?"

"Jes' fair to middlin', stranger—jes' fair to middlin'. 'Taint nothin' like it wuz back in Cleveland's administration."

Hangs Around

"Good morning, my son," quoth the census taker. "You seem to be a bright little shaver. Have you any brothers or sisters?"

"Yes, I got a lot of brothers and sisters. There's seven of us boys, and eight girls."

"My, my. The stork must visit you often."

"Visit us? He lives with us."

Example

The first morning after the honeymoon, the husband got up early, went down to the kitchen and brought his wife her breakfast in bed. Naturally, she was delighted. Then her husband spoke:

"Have you noticed just what I have done?"

"Of course, dear; every single detail."

"Good. That's how I want *my* breakfast served every morning after this."

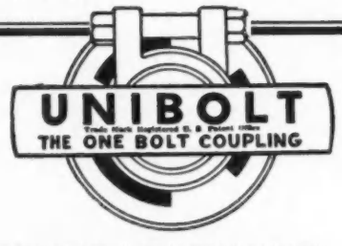
Circle

"At last we're out of debt."

"Oh, thank goodness! Now I can get credit again."

Oil Is Ammunition

We read of the increasing rate of our production of airplanes; we thrill at the reports of new naval vessels that are being launched daily; the automobile industry's production of tanks is increasing at a rate that reflects great credit on that industry—but all of these must be useless in the face of an insufficient supply of petroleum products.—WESLEY E. DISNEY, *member of House of Representatives from Oklahoma.*

HOW TO MAKE A LITTLE STEEL GO A LONG WAY
A 2", 6000 lb. test, ring joint flanged union weighs 54 lbs. . . . enough steel to make nearly five 2", 6000 lbs. test, UNIBOLT Couplings! And UNIBOLT Couplings have a higher safety factor.


THORNHILL-CRAVER COMPANY
HOUSTON

Notes for the Equipment Buyer and User

Gun Perforator

McCULLOUGH TOOL COMPANY

McCullough Tool Company, Los Angeles and Houston, is operating a gun perforator which produces six perforations per foot, or 30 perforations in a 5-foot section. The perforations are in four staggered rows 90° apart. When a zone of considerable thickness is to be perforated, several guns are joined together to perforate a section of 10, 15 or 20 feet on each run. The spacing of the perforations is the same when the multiple guns are used. When more than 6 holes per foot are desired, the casing is perforated a second time, the gun being positioned an inch higher or lower than the first time. Thus, four additional staggered rows of holes are obtained, giving 12 holes per foot.

Due to the fact that all shots are fired simultaneously while the gun perforator is at rest, the spacing of the perforations is exact and uniform, being a projection of the position of the barrels in the gun perforator.

The 3½-inch gun fires ¼, ⅜, ½ and ⅝-inch bullets. The 4¼-inch gun fires ¼, ⅜, ½, ⅝ and ¾-inch bullets.

The guns are fired either electrically or mechanically when run on wire line.

This gun perforator can also be run on drill pipe or tubing, either singly or in multiple, and is fired mechanically by means of a go-devil dropped inside the pipe or operated on a measuring line. This latter method permits careful measurements of the pipe in positioning the gun perforator at the exact point designated in the hole.

Murray Elected Head of Oil Well Supply Company

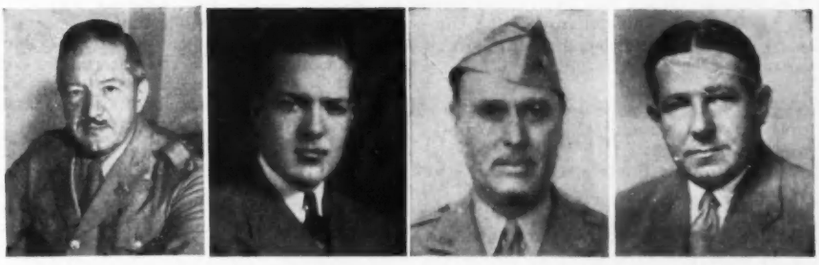
Fred F. Murray of Dallas, vice president of Oil Well Supply Company, a subsidiary of United States Steel Corporation, has been elected president of the company. He succeeds Benjamin F. Harris of Pittsburgh, resigned.

Murray is president of the Petroleum Equipment Suppliers Association and a director of the American Petroleum Institute. He holds membership in the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers. He maintains headquarters at Dallas, where he has been with the company since 1936.

Pittsburgh Equitable Meter Executives in Service

Four of the top executives of the Pittsburgh Equitable Meter Company, Pittsburgh, are participants in various branches of governmental service.

Colonel Willard F. Rockwell, president, who has been in the Army Re-



W. F. ROCKWELL — W. F. ROCKWELL, JR. — A. E. HIGGINS — A. D. MacLEAN

serve over 20 years, has been serving as director of production for United States Maritime Commission in Washington, since April 7, 1942. In this capacity, he is in charge of the production requirements for cargo vessels. He is a member of the executive committee of the Army and Navy Munitions Board, the material requirements committee and scheduling committee of WPB, as well as serving on numerous other committees.

Allen D. MacLean, vice president and chief engineer, is also in Washington with the Maritime Commission serving as assistant director of production.

Private W. F. Rockwell, Jr., vice president and comptroller, is in training at the Army Ordnance Officers' School, Aberdeen Proving Grounds, Aberdeen, Maryland.

Captain A. E. Higgins, vice president and sales manager, a Reserve Officer of many years standing, has been commissioned a major and assigned to active duty with the Air Corps.

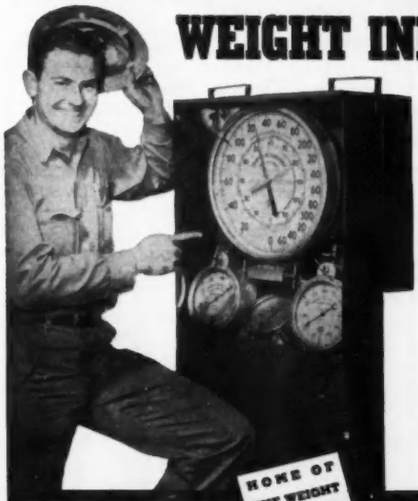
Synthetic Rubber

The United States Rubber Company, Synthetic Rubber Division, 1230 Sixth Avenue, New York, is distributing a booklet, "The Five Commercial Types of Synthetic Rubber," which traces the development of synthetic rubber from its laboratory beginnings, describes the properties of the commercial synthetic rubbers, and relates briefly the manufacture and use of its various products.

The publication includes photographs of synthetic rubber manufacture, many diagrams, and a chart compiled from the experience of plants and laboratories of the company, giving the relative physical and chemical properties of natural rubber and of the five types of synthetic rubber.

Air Compressors

Worthington Pump and Machinery Corporation, Harrison, New Jersey, has issued "Plain Talks on Air and Gas Compressors," second of a series. Each one of the series will cover one or more major divisions of the subject. It is their purpose to recall to the attention of compressor users the basic principles which underlie the successful operation and maintenance of their equipment and to present in concise and understandable language an explanation of recent developments and modern practice.



WEIGHT INDICATOR POINTS

SERVING THE WAR EFFORT—Hundreds of Martin-Decker Weight Indicators are playing vital wartime roles in the construction, aircraft and marine industries . . . the same weight indicators you are using on your drilling rigs and production hoists. We are proud that the instruments which we have developed in over 16 years of experience and service to the oil industry are now recognized as essential to many other phases of the war effort. You can rely on Martin-Decker Equipment for ruggedness, accuracy and dependability.

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SAN JOAQUIN VALLEY: A. F. McQUISTON, BAKERSFIELD, CALIFORNIA

MID-CONTINENT DISTRIBUTOR: REED ROLLER BIT COMPANY, HOUSTON, TEXAS

Men in the Industry's News

HARRY AGGERS, superintendent of production for Union Oil Company of California in the Domenguez district of the Los Angeles Basin, has been transferred to Midland to assume charge of the company's expanding operations in West Texas.

DAVID L. TRAX, staff assistant and production specialist with Gulf Oil Corporation at Tulsa, is joining PAW as special assistant to the director of materials at Washington.

E. L. FOX, who has been office manager of Hissom Brothers, drilling contractors at Tulsa, is leaving the oil business to go with Pullman Standard Car Manufacturing Company, Hammond, Indiana. He is being succeeded at Hissom Brothers by P. E. Keefe, formerly with Summit Drilling Company.

JAMES S. NOLAND, who has been proration manager for Barnsdall Oil Company for a number of years, has resigned effective September 1 to join the land department of Phillips Petroleum Company. Noland became associated with Barnsdall Oil Company when it consolidated with Waite Phillips interests in 1926.

GLEN M. RUBY, geologist who has been exploring for oil in Chile for many months, reports from Santiago that an oil seep has been found south of Punta Arenas, in Magellanes.

Economical Steam Constantly . . . That's the Mission of SAND-BANUM!

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Regardless of age, temperature, water or operating conditions, it functions automatically.

Sand-Banum removes and prevents scale and corrosion in absolute safety to personnel and equipment.

Clean heat transfer surfaces make for combustion efficiency, fuel economy, maximum delivered power, and longer equipment life.

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AMERICAN SAND-BANUM COMPANY, Inc.

9 Rockefeller Plaza, New York City

LEROY H. HINES and HARTWELL H. KUESTER have been appointed assistant managers of the land and lease division of the producing department of Standard Oil Company of California.

Hines is a graduate of the Washington College of Law, and entered the company's employ in 1935. He was lease specialist on government land matters before his present appointment.

Kuester was educated at Oregon State College and at the University of California. He began working for the company while at college, and later entered the producing department. His current assignment includes leasing activities in connection with exploration projects.

CHARLES T. MIERS has been promoted to assistant district superintendent for Humble Oil & Refining Company, Maurbro District, Texas.

ADOLFO ALVAREZ has been appointed general South American representative of Westinghouse Electric International Company, with headquarters in Buenos Aires. A citizen of Argentina, he also is vice president of Cia. Westinghouse Electric Internationale, a South American subsidiary of the International Company.

HARRY D. HAMPTON, Houston, has been placed in charge of field operations for Byrne Drilling Contractors, a company recently organized in Dallas. He will have temporary headquarters in Graham, Texas. The Byrne organization has been operating as general construction contractors for a number of years.

GUY H. WOODWARD, for 23 years an attorney in the oil industry and since 1931 with Stanolind Oil & Gas Company at Tulsa, has resigned effective September 1 to accept the post of research counsel in Washington for Senator E. H. Moore of Oklahoma.

C. T. SUBBIE, North Texas representative of the Chemical Oil Survey Company, has been transferred from Wichita Falls to Houston, where he will have charge of new office serving the Texas-Louisiana Coastal district.

CLAYTON S. SHOEMAKER has been appointed Eastern sales manager for The Dow Chemical Company, with headquarters at 30 Rockefeller Plaza, New York. He had been associated with the company for a number of years and has occupied various sales executive positions.

Frederick A. Koch has been named assistant Eastern sales manager. He has been assistant manager of the New York sales office for 15 years. He will continue to have headquarters in New York.

C. S. SHOEMAKER

F. A. KOCH

E. PERRY HOLDER, former president of the Vulcan Iron Works, Wilkes-Barre, Pennsylvania, has been elected president of Wickwire Spencer Steel Company, with headquarters in New York. He succeeds E. C. Bowers who has resigned because of a serious illness. Holder is a graduate of Phillips Exeter Academy and of Yale College. Practically all of his business career has been in executive positions connected with the manufacture and sale of steel and other metal products. He was executive vice president of American Machine and Metals, Incorporated, until 1937 and since 1940 has been president of Vulcan Iron Works, which position he is resigning to take over his new work.

E. A. MILLER has been appointed general shop superintendent of Lane-Wells Company, and will have charge of manufacturing operations in the Los Angeles plant.

Miller first went to work for Magnolia Petroleum Company where he served his apprenticeship as a machinist. He moved to California in 1922 and started with the General Petroleum Corporation where he became general foreman of the manufacturing and service maintenance shops.

WALTER H. COX, who for the past four years has been sales representative for Lee C. Moore & Company, in the Illinois Basin area with his headquarters at Evansville, Indiana, has been transferred to the company's home office at Pittsburgh, where he will have charge of oilfield sales in Pennsylvania, New York, West Virginia, Ohio and Michigan.

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General Heading: BAKER ROTARY WALL SCRAPER and BAKER ROTARY WALL SAMPLER

Unit No. A-22

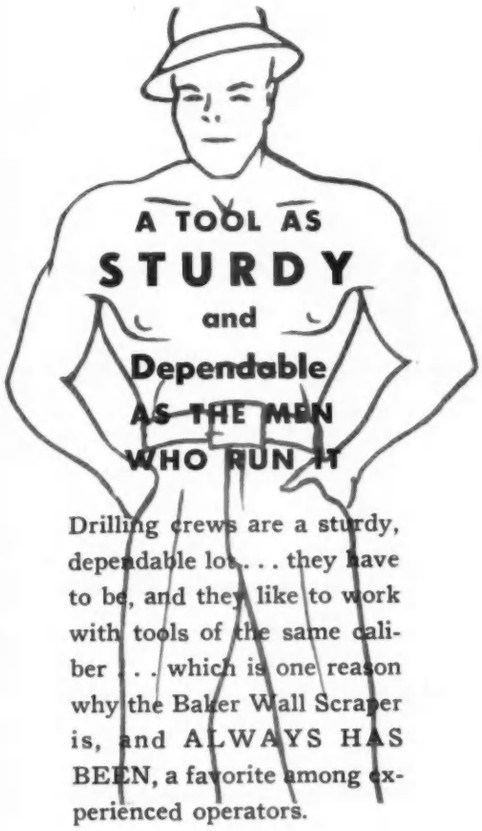
Subject:

A Simple Solution to Hole Enlarging and Wall Scraping Problems

BAKER OIL TOOLS, INC.

Main Office and Factory:
6000 So. Boyle Ave., Box 127, Vernon Station, Los Angeles, Calif.
Central Division Office and Factory:
6023 Navigation Blvd., Box 3068, Houston, Texas
Export Sales Office:
19 Rector Street, New York, N. Y.

Index: 250.1
Date: August 30, 1943
Page: 1



Drilling crews are a sturdy, dependable lot . . . they have to be, and they like to work with tools of the same caliber . . . which is one reason why the Baker Wall Scraper is, and ALWAYS HAS BEEN, a favorite among experienced operators.

The Baker Rotary Wall Scraper provides a safe, economical method of enlarging the walls of an open hole to a diameter considerably larger than that of the casing through which it is run.

SIMPLICITY OF USE AND OPERATION:

This tool is practically fool-proof. It is constructed with a minimum number of essential parts. Any experienced driller can secure FIRST TIME satisfactory results.

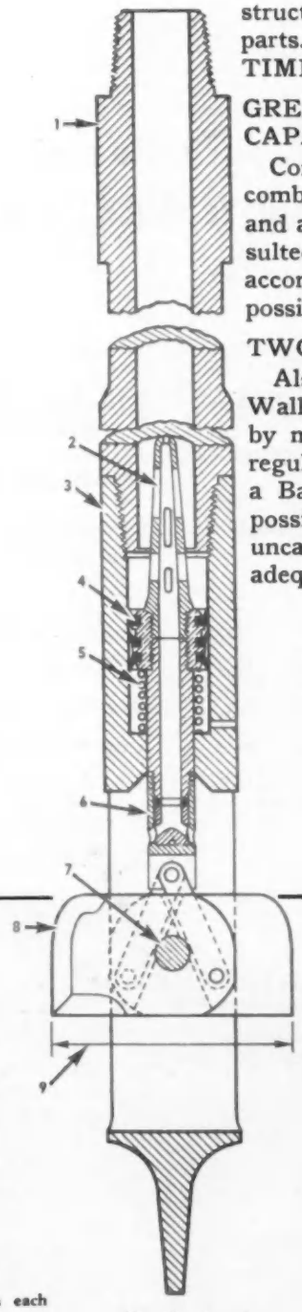
GREAT STRENGTH AND REAMING CAPACITY:

Correct design plus sturdy construction, have combined to give the tool great strength (safety), and a remarkable reaming capacity. This has resulted in the Baker Wall Scraper being able to accomplish many jobs never before considered possible.

TWO TOOLS IN ONE:

Also, don't overlook the fact that the Baker Wall Scraper is really "Two Tools In One," as by merely substituting Sampler Blades for the regular Scraper Blades the tool is converted into a Baker Wall Sampler. With this device it is possible to take cores from the side walls of any uncased hole at any depth . . . cores that are adequate for accurate laboratory analysis.

Send for Baker Broadcast No. 19 . . . a 40-page illustrated treatise giving complete details as to the many practical field applications for the Baker Wall Scraper and Wall Sampler.



Product No. 500
Baker Rotary Wall Scraper

Features Which Make the *BAKER ROTARY WALL SCRAPER* A DEPENDABLE TOOL:

(1) Double Pin Drill Collar—Connects Wall Scraper Body to drill collar.

(2) Circulation Screen—Design of cone-shaped Screen minimizes abrasive action of fluid and prevents debris from clogging circulation passages.

(3) Wall Scraper Body — Machined out of a solid piece of special alloy steel . . . provides great strength.

(4) Plunger Head—Provided with oil resistant Seals to prevent fluid by-pass and insure Piston efficiency . . . Blades will Positively Open.

(5) Plunger Spring — Strong Plunger Spring insures proper closing of blades.

(6) Bushing (Circulation Bean)—Fluid is directed on each blade, lubricating and cooling cutting surfaces.

(7) Hinge Pin—Machined from solid piece of special alloy steel.

(8) Blades—Machined from special alloy steel forgings . . . afford toughness and hardness. Cutting edges are hard-faced and set with Tungsten Carbide Inserts. Long bearing surface on blades minimizes "corkscrewing."

(9) Blade Expansion—Amazing reaming capacity provided by expansion range of Cutter Blades from 4" to 36".

For further instructions and operating details, see pages 279-287 of the 1942 Baker or Composite Catalog.

Service Note

Competent Baker men will advise, make suggestions, and otherwise assist in securing best possible results.

FLUPACO'S *Pumping Analysis*

SAVES REPAIR TIME • CUTS OPERATING COSTS • INSURES LONGER LIFE

Flupaco Pump Service Men are ready to analyze these "pumping factors" in your wells...

- Depth of well
- Depth of pump setting
- Well productivity
- Sand and/or gas conditions
- Water (type and %)
- Total fluid production
- Bore of pump (plunger diameter)
- Tubing size or combinations
- Rod size and % of each if combination
- Gravity of oil
- Length of polished rod and pump stroke
- Number of pump strokes per minute
- Corrosion and abrasion factors
- Pumping time, full or part

DISCUSS your pumping requirements with Flupaco service men. Get their helpful suggestions on... the right size of pump for your well... proper installation, pump fit and bore... recommended strokes and speeds ...correct valve spacing and plunger fit. This "PLUS" service can be an invaluable aid in your wartime maintenance program.

Flupaco Pumps with hardened and honed one-piece barrel construction are the result of a long range pump development program. These pumps are so simple, so long wearing, they outwear many others as much as 5 to 1 under the toughest pumping conditions. And there's a Flupaco Pump for every production need. Call our field service man for complete information.

THESE FLUPACOS WI[LL] [MEE]T YOUR PUMPING [NEE]DS

GROOVE SEAL PUMPS
"VOLUME PRODUCER"—For large wells.
"PRODUCER"—For medium wells.
"PETROL A"—For shallow production.

"IMPROVED INSERT" PUMPS
The quality pump of one-piece barrel construction. Extra wall thickness assures unusually long life and permits several re-honing jobs. Available in all popular sizes and lengths.

FLUID PACKED PUMPS (3-Tube Type)
For troublesome wells... especially where sand conditions prevail.
"POSITIVE PULL TYPE"—Economical for normal pumping conditions.
"REMOVABLE (KEY) TYPE"—Standing valve and seat can be removed when pulling traveling tubes.
"MARGINAL TYPE"—For small volume wells and shallow depth.

TUBING LINER PUMPS
Large volume producer in various lengths and three diameters.

"FLUCUP" PUMPS
Low cost pumps which give highly efficient production under less severe conditions.

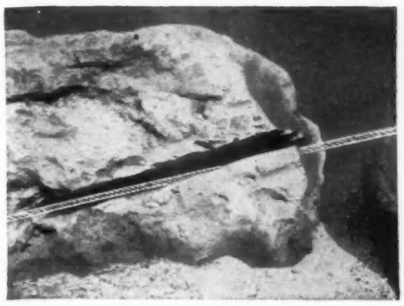
"FLU-RING" PUMPS
Low cost pumps for a wide range of conditions.

FLUID PACKED PUMP COMPANY
MAIN PLANT: LOS NIETOS, CALIF.
HUNT BLDG., TULSA, OKLA.; 6006 NAVIGATION BLVD., HOUSTON, TEXAS; TEXAS BK. BLDG., DALLAS, TEXAS; NAT'L SUP. CO. STORES, ILLINOIS FIELDS
WORLD'S LARGEST EXCLUSIVE OIL WELL PUMP MANUFACTURERS

9 Important Factors That Affect Wire Rope Life

Some years ago, a lad came into the country crossroads store and announced sadly that his pet dog had died. "Too bad, son," consoled the storekeeper. "Did he have a dog doctor?" "No sir," answered the lad, "he just died by himself."

Your wire rope may end up that same way. It too can die by itself because of lack of care or attention. But you can help



your ropes "live" longer . . . and that is most important today . . . by consulting a trained and experienced wire rope engineer. Macwhyte engineers (rope doctors) are always glad to be of assistance.

Then there is another thing you can do. By knowing what the most common "rope saboteurs" are, by taking precautions against them yourself, you can improve your wire rope service.

9 Factors Affecting Service

There are many factors affecting the life of wire rope, but the following nine are the most common.

1. Abrasion or wear
2. Bending or flexing
3. Tension or stress
4. Speed
5. Crushing or mashing
6. Jerking or shock
7. Vibration
8. Heat or friction
9. Weathering or corrosion

In reviewing these factors, we realize that some of them are normal and to be expected, but they are, nevertheless, included because all factors need to be checked and watched to see that they do not become abnormal.

The first four listed, for example, are normal when not excessive for the particular job, equipment, size and construction of rope used. The other five are abnormal and where they exist, they should be corrected if at all possible. Many working ropes are exposed to from 3 to 5 of these factors at one time.

What can the wire rope user do about them? Here are a few simple suggestions . . . things you can watch for, simple changes you can make.

1. Abrasion or wear

All operating ropes are subjected to abrasion as a normal part of their duty, but some abrasion is due to neglect. Watch for the causes of abrasion that may be avoided, such as scraping wire rope along the ground, pulling wire rope over sharp edges and, as illustrated (left), allowing wire rope to create a sawing action on rock or other materials. Here we see a deep channel cut into the rock by continuous and frequent contact of the wire rope with the rock as it operated back and forth.

2. Bending or flexing

Too small sheaves and reverse bends are the worst offenders to rope life. Here you see an example of what excessive bending can do. This rope was run over

sheaves that were too small. The results are broken wires, ruined rope.

Watch for broken wires. Inspect your sheave diameters and check to make sure you have the wire rope construction best suited for flexibility and to meet other conditions of your operation. Where sheaves of necessity are smaller than that recommended, use PREformed wire rope.

3. Tension or stress

All wire rope is subjected to tension or stress, but the problem here is to see that the rope is not overstressed for its size and construction. In some cases, it has been found that a larger rope reduces the stress or pressure and prevents the rope from stretching beyond its elastic limit for which it was designed. Consequently, longer service will be obtained on some installations by increasing the size of the rope.

To obtain the best service from wire rope, it should not be operated beyond the recommended safe load which is a fraction of its ultimate strength and varies for different types of service, as explained in other articles in this series.

4. Speed

Generally speaking, the greater the speed of operation, the less service that can be expected from wire rope. High speed operation, such as on mine shaft hoists, high speed elevators, and cableway hoisting equipment, requires larger sheaves than recommended for other uses, in order to get the best life out of the rope. Speed is a definite factor affecting wire rope life, and is worthy of study if the best service is to be obtained.

Space does not permit a discussion of the remaining factors in this article; these will be covered later.

In these days of need for wire rope conservation, always feel free to write to Macwhyte Company, state your problems or what information you would like to have and Macwhyte engineers will be glad to give you the benefit of their advice and counsel.

This is Number 17 in a series of informative articles on how to get the most out of wire rope. It is directed to those who want to do everything they can to lengthen wire rope life and conserve steel. All articles in the series are available on request.

MONARCH Whyte Strand
PRE-FORMED WIRE ROPE

. . . Macwhyte's best grade wire rope, famous for its strength, toughness, preforming, and internal lubrication.

NO. 606

MACWHYTE COMPANY

WIRE ROPE

ARMY E NAVY

2933 FOURTEENTH AVENUE KENOSHA, WISCONSIN

Mill Depots: New York · Pittsburgh · Chicago · Fort Worth · Portland · Seattle · San Francisco. Distributors throughout the U.S.A.

Manufacturers of MACWHYTE PREformed and Internally Lubricated Wire Rope MONARCH WHYTE STRAND Wire Rope

MACWHYTE Special Traction Elevator Rope MACWHYTE ATLAS Braided Wire Rope Slings MACWHYTE Aircraft Cables and Tie-Rods

THE OIL WEEKLY, published every Monday. Entered as second class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

ANNOUNCING

The Purchase of Dailey-Owens Tool Company

★

WE have purchased the Dailey-Owens Tool Company and established a Fishing Tool Department of Hunt Tool Company in charge of Arch Owens, former co-owner of the Dailey-Owens organization.

It is our endeavor to build a Fishing, Cutting and Shooting Service that will give the Gulf Coast the most efficient organization of its kind.

This service is now avaiable from our Houston and Houma shops and will shortly be available from four other Hunt shops . . . Bay City, Corpus Christi, Jennings and Harvey.

★

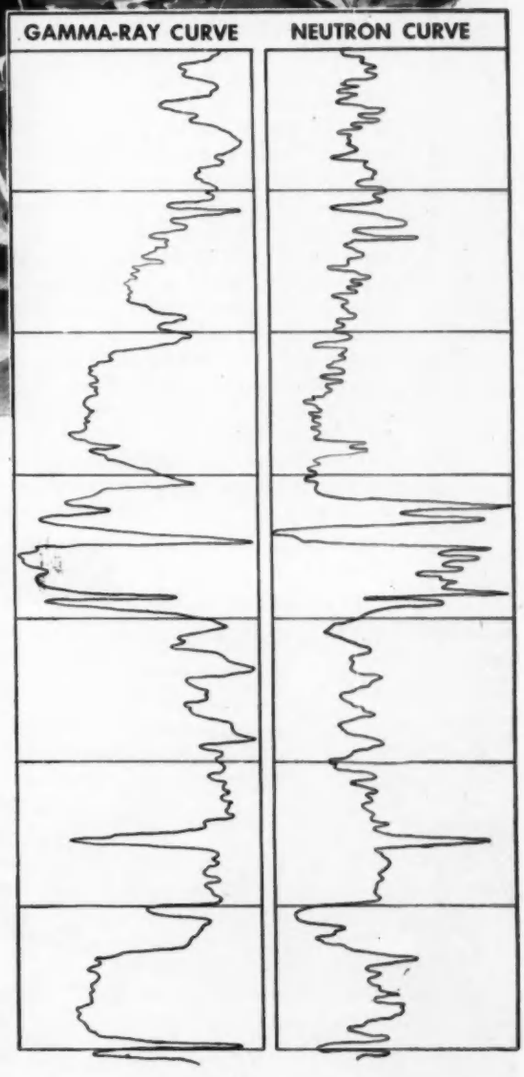
"A Business Built on Service"

HUNT TOOL COMPANY

FIELD SHOPS:
Houston, Bay City, Corpus Christi, Jennings, Shreveport, Harvey

EXPORT SALES:
W-K-M Company, Inc.
74 Trinity Place, New York City

HUNT TOOL COMPANY
HOUSTON, TEXAS, U. S. A.



STARTS HERE

Millions of barrels of oil—additional production that was cased off during original completion programs—are flowing into tankers and airplanes to provide fuel for INVASION. The steel, ordinarily required, is being used for tanks, guns and ships.

Lane-Wells provides American oil well operators with the services and tools that enable them to produce *more* oil *more* efficiently, with *less* steel. The methods made possible by these Lane-Wells services will help to assure an adequate supply of petroleum products for the Allied Forces throughout the world.

Call your Lane-Wells Field Office for complete details of Lane-Wells 3-Way services for efficient remedial programs.

FIGHTING
Tomorrow's Tools-Today!

LANE WELLS COMPANY

LOS ANGELES · HOUSTON · OKLAHOMA CITY
General Offices and Export Office: 5610 So. Soto St., Los Angeles
24-HOUR SERVICE · 30 BRANCHES

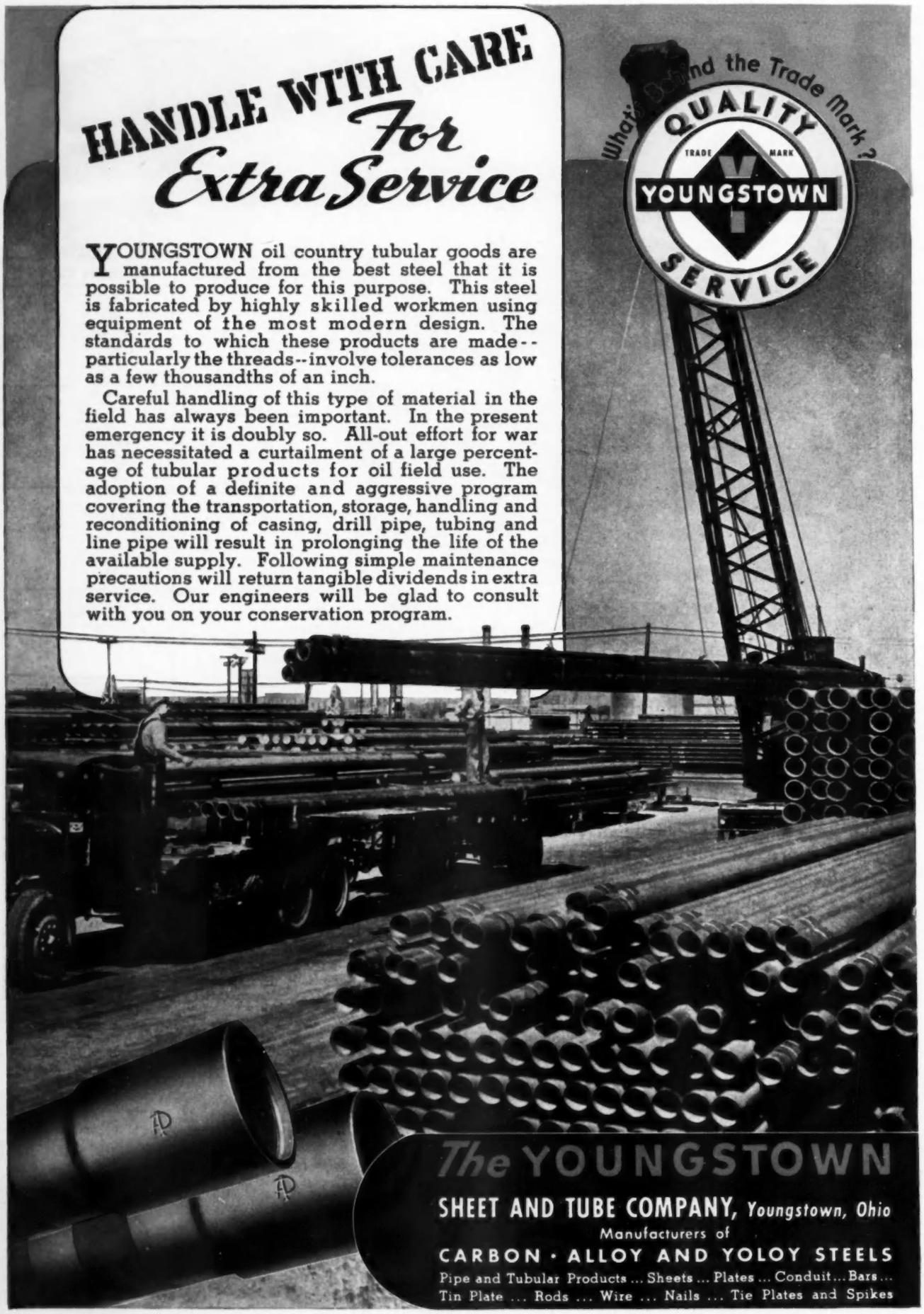
HANDLE WITH CARE For Extra Service

YOUNGSTOWN oil country tubular goods are manufactured from the best steel that it is possible to produce for this purpose. This steel is fabricated by highly skilled workmen using equipment of the most modern design. The standards to which these products are made--particularly the threads--involve tolerances as low as a few thousandths of an inch.

Careful handling of this type of material in the field has always been important. In the present emergency it is doubly so. All-out effort for war has necessitated a curtailment of a large percentage of tubular products for oil field use. The adoption of a definite and aggressive program covering the transportation, storage, handling and reconditioning of casing, drill pipe, tubing and line pipe will result in prolonging the life of the available supply. Following simple maintenance precautions will return tangible dividends in extra service. Our engineers will be glad to consult with you on your conservation program.

What's Behind the Trade Mark?

QUALITY TRADE MARK YOUNGSTOWN SERVICE



The YOUNGSTOWN SHEET AND TUBE COMPANY, Youngstown, Ohio

Manufacturers of

CARBON · ALLOY AND YOLOY STEELS

Pipe and Tubular Products ... Sheets ... Plates ... Conduit ... Bars ... Tin Plate ... Rods ... Wire ... Nails ... Tie Plates and Spikes

ALUMINUM PAINT IS DOING *Convoy Duty*

In the hotter spots aboard ship you are likely to find aluminum paint. It has the faculty of "staying put" on boiler room equipment, engines and steam lines. Even on surfaces that become dull red, where the heat actually burns out the paint vehicle, the aluminum flakes still adhere.

That fact has made aluminum paint irreplaceable for such service.

It actually dams up the heat. Keeps the temperature higher inside and lower outside a boiler, furnace or pipe. Thus it improves operating efficiency and, at the same time, makes working conditions in the vicinity more tolerable.

In most places above deck, where aluminum paint formerly gave superior protection against salt water and strong sunlight, it has been granted a leave of absence just as it has from civilian duties on shore but . . .

SOME DAY YOU'LL BE USING
Aluminum Paint
AGAIN

ALCOA
ALUMINUM
ALBRON

ALUMINUM COMPANY OF AMERICA

1947 GULF BUILDING, PITTSBURGH, PA.

MAKERS OF ALCOA ALBRON PASTE, MADE UNDER PATENTS OF METALS DISINTEGRATING COMPANY, INC.

The

WESTERN UNION

CLASS OF SERVICE DESIRED

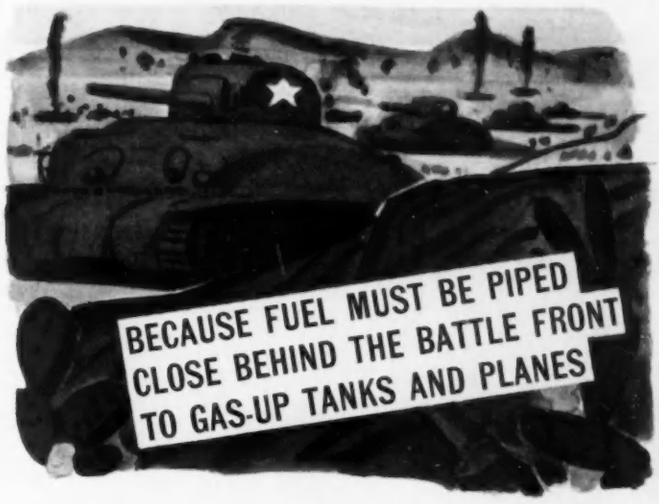
DOMESTIC	* CABLE
TELEGRAM	ORDINARY
DAY * LETTER	URGENT RATE
SERIAL	DEFERRED
NIGHT LETTER	NIGHT LETTER

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

TIME FILED

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

STILL UNABLE TO SUPPLY ALL YOU NEED OF G-B ROLAGRIP AND GRUVAGRIP PIPE COUPLINGS . . . SEGWELD FITTINGS . . . FIBERGLAS INSULATION AND OTHER G-B PRODUCTS



The management and employees of the Gustin-Bacon Manufacturing Co. are proud to receive the joint award of the Army and Navy, presented to our Kansas City plants. We are keenly aware of the important responsibility it imposes upon us to increase the production of our Fiberglas insulation, Rolagrip and Gruvagrip pipe couplings, Segweld fittings and the many other G-B products that are helping to win the war today, and will help to build a better world tomorrow.

GUSTIN-BACON MFG. CO.

KANSAS CITY, MISSOURI

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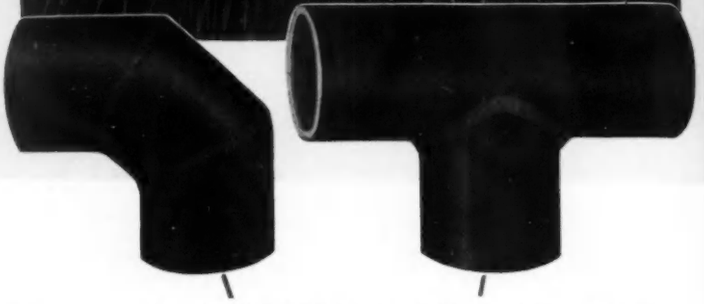


G-B ROLAGRIP PIPE COUPLINGS FOR PLAIN END PIPE

Saves threading, grooving, or beveling pipe ends. Permits use of lighter pipe. Simple — only 3 parts. Speedy to install — only 2 bolts to tighten with ordinary wrench. Safe — controls movement due to expansion, contraction, and flexing. Affords a permanent, leak-tight seal.

G-B GRUVAGRIP PIPE COUPLINGS

A simple, easily installed, leak-tight coupling for grooved end pipe.

G-B SEGWELD PIPE FITTINGS

Double welded on precision jigs. Varied pitch welding bevel cut on automatic machines. Afford greater strength. Save man hours. Supplied with plain, grooved, threaded, or flanged ends—galvanized, cadmium or lacquer finishes.

G-B MFG. CO.

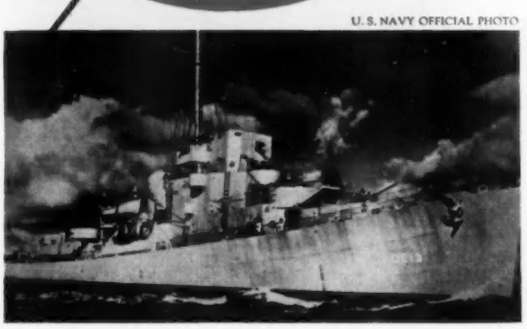
PLASTITE CEMENT

Specially developed for superior bonding of insulation and facings to steel surfaces with or without the use of mechanical fasteners.

FIBERGLAS INSULATION

Processed and supplied in special forms for special industrial uses by Gustin-Bacon. Extensively used to more efficiently insulate passenger, refrigerator, and tank cars in the railway field, ships of many kinds in the marine field, aircraft, etc.

U. S. NAVY OFFICIAL PHOTO



GUSTIN-BACON MFG. CO.

KANSAS CITY
MISSOURI
CHICAGO • NEW YORK
PHILADELPHIA • SAN FRANCISCO
TULSA • FT. WORTH • HOUSTON

Sub-Surface Facts
ON THE
CONTROL OF FLOWING WELLS

No. 5 | 1943 | DALLAS, TEXAS

TWO-ZONE COMPLETIONS GREATLY SIMPLIFIED WITH OTIS TYPE G SIDE-DOOR CHOKE

The Otis Type G Side-Door Choke provides a means for opening and closing circulating ports in the tubing string a short distance above the packer, after the packer has been set and surface connections permanently tied down.

Both zones can therefore be safely circulated or swabbed-in without moving the tubing string or changing surface connections. After the annular space and tubing are unloaded, the circulating ports are closed simply by setting the Side-Door Choke. This completely separates the two zones and permits them to be produced independently of each other.

USE GAS FROM UPPER ZONE TO FLOW LOWER ZONE . . .

The Otis Type G Side-Door Choke also furnishes a means to utilize gas from an overlying gas zone to assist oil to flow from a lower zone.

Through a small side orifice in the cup mandrel a controlled volume of gas from the upper zone is allowed to enter the tubing, reducing the weight of the oil column and causing the lower zone to flow.

A removable back pressure valve in the lower end of the choke landing nipple prevents the upper zone from charging the lower zone.

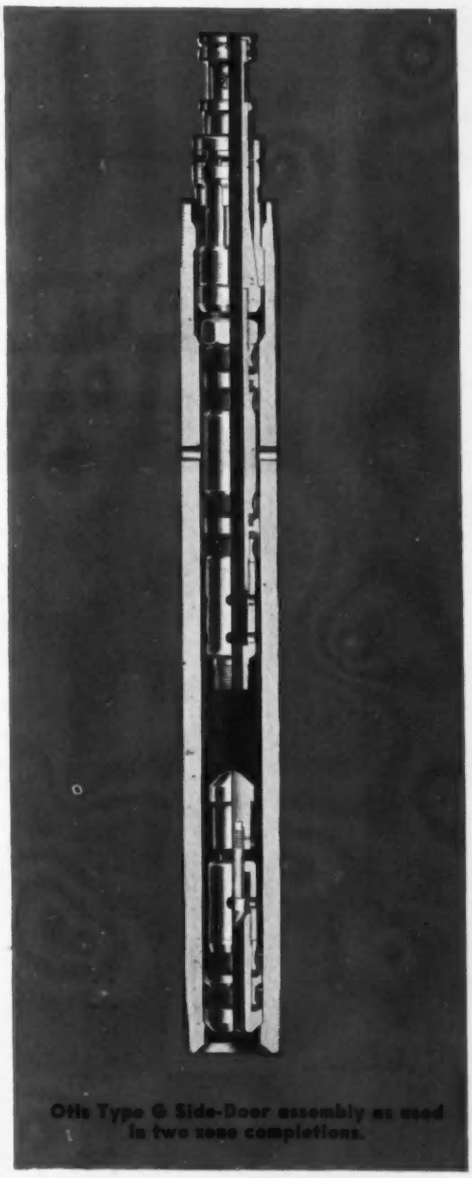
INSTALLED UNDER PRESSURE . . . TUBING NOT DISTURBED

Without disturbing the tubing or well pressure, the Otis Type G Choke can be run and pulled on an ordinary steel measuring line.

A special equalizing device constructed within the choke has greatly simplified this operation, particularly where the two zones have a considerable differential in pressure.

Trained Otis Service Crews are available in most major oil fields for the installation of sub-surface pressure tools and for the running and pulling of tubing or packers under pressure.

NOW YOU CAN TAKE BOTTOM HOLE PRESSURES OF EITHER PAY IN TWO-ZONE WELLS . . . OTIS TYPE G SIDE-DOOR CHOKE PERMITS ACTUAL GAUGING WITHOUT MOVING TUBING



Otis Type G Side-Door assembly as used in two zone completions.

Because the annular space between the tubing and casing is used as a flow conductor from one pay of a two-zone well, the actual gauging of bottom hole pressures from this particular zone cannot be taken in the conventional manner.

The Otis Type G Side-Door Choke provides a means to actually record the pressure of either zone independently of the other with a regular bottom hole pressure gauge. Operators were quick to recognize the utility of this simple and practical tool and have generally adopted it as standard equipment for two-zone flowing wells.

By equipping the choke with a pack-off section which has an open vertical bore, but no side inlet, the upper formation is blanked off and pressure can be taken of the lower zone only. Likewise, if a pack-off section with a side inlet is used, but with the lower end of the vertical bore closed, the lower zone is blanked off, permitting pressures of the upper zone only to be taken.

In the latter operation, a newly devised equalizing attachment is used when the lower zone has the greater pressure. This device makes it possible to equalize pressure across the choke, thereby permitting the slight downward movement which is necessary to release the locking mechanism to permit pulling the tool.

This whole operation of recording Bottom Hole pressure can be accomplished under pressure, and without moving the tubing.

OTIS PRESSURE CONTROL, INC.
DALLAS, TEXAS

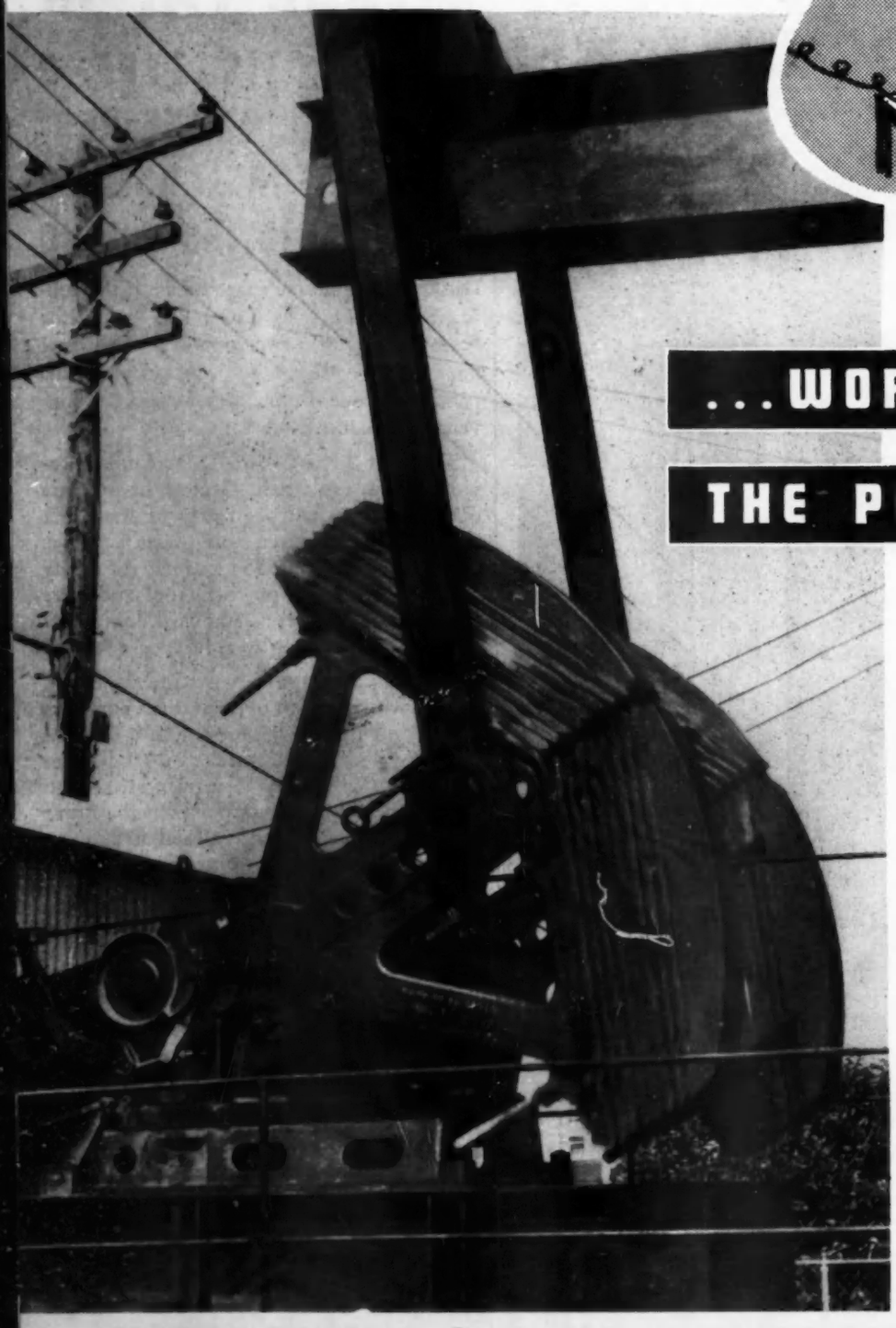
Branches: Houston and Corpus Christi, Texas; Hobbs, New Mexico; New Iberia, Louisiana; Magnolia, Arkansas.

Representatives: Otis Eastern Service, Inc., Wellsville, N. Y.; Western Pressure Control, Los Angeles and Bakersfield, Calif.

Export Office: 74 Trinity Place, New York City

POWER

THAT COOLS AND SOOTHES...



...WORKS VALIANTLY ON

THE PETROLEUM FRONT

Remember, back in peace times, when you used electricity for just about everything around the house. It still brings comfort to thousands of folks yet, but the big and important job of Utility Electric Power today is in helping to win the war. On the petroleum front alone it is working valiantly to help provide oil for our fighting men. There's no job too big nor too small. So you—in the petroleum industry—can help too. Conserve electricity wherever possible. Help keep the power UP that keeps the oil flowing!

Utility Electric Power is being used to pump oil through the 1400 mile artery—Big Inch Pipe Line. Another tribute to electricity!

Utility ELECTRIC POWER

Use Utility Electric Power!

PETROLEUM ELECTRIC POWER ASSOCIATION

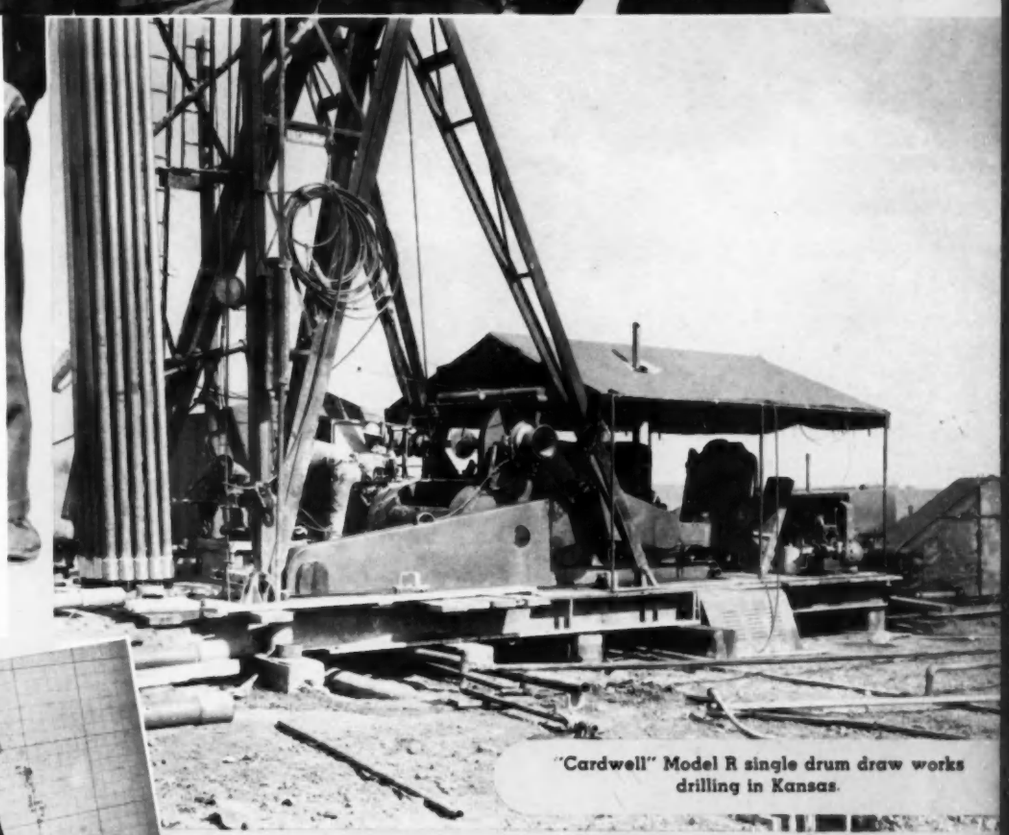
Box 1198, Oklahoma City, Oklahoma

We said it's the best - AND PROVED IT ON EVERY WELL

When toolpushers, drillers and roustabouts get enthusiastic about a drilling rig, you can be sure it's a "Cardwell". Every tour thinks this rig is the smoothest and easiest operating of any they've ever used.

It means a lot when your crew swears by their equipment. It means they will make more hole, faster and cheaper with less down time and accidents. Give your crews "Cardwell" rigs and you'll find they will do more work and cut your operating costs to a minimum.

Below — William L. Ainsworth and Ben L. Mouser, of the Mouser Drilling Company, say: "When it comes to equipment that costs less to move, operate and maintain, we can't beat a "Cardwell".



"Cardwell" Model R single drum draw works drilling in Kansas.

We are still delivering draw works, combination drilling rigs and servicing hoists, with or without masts, to holders of priority orders. Contact your nearest "Cardwell" representative for information or assistance; or write us direct.

CARDWELL ALL STEEL

THIS TRADE MARK INSURES HIGHEST QUALITY AT LOWEST PRICE

CARDWELL MFG. CO. INC.

FORMERLY ALLSTEEL PRODUCTS MFG. CO.

P. O. Drawer 2001 - Cable Addresses "ALLSTEEL", WICHITA - "CARDSTEEL", NEW YORK

Wichita, Kansas, U. S. A.

"CARDWELL" RIGS ARE STRONGER, WEAR LONGER AND WEIGH LESS

Hundreds of "Contributaries"

feed their production into channels which flow into the hulls of ships as they are launched — for these empty hulls must be completely outfitted before they become commissioned ships.

Illustrated are some of the castings Hughes Tool Company is producing to speed the commissioning of ships — these and numerous other war products *in addition to tools for the essential Oil Well Drilling Industry.*

HUGHES TOOL COMPANY

HOUSTON TEXAS

Senior Organization in Men and Management for

HUGHES AIRCRAFT STRUT DIVISION—DICKSON GUN PLANT—HUGHES AIRCRAFT COMPANY